

Figure 1a

	MS-GPC-8-27-7	MS-GPC-8-27-10	MS-GPC-8-6-13	MS-GPC-8-27-41	MS-GPC-8-6-47	MS-GPC-8-10-57	MS-GPC-8-6-27	MS-GPC-8	MS-GPC-8-6
Plastic	-0.004	-0.020	-0.022	-0.025	-0.001	0.005	0.007	-0.022	-0.018
BSA	-0.003	-0.019	-0.021	-0.022	0.008	0.003	0.003	-0.016	-0.019
Testosterone-BSA	-0.005	-0.010	-0.012	-0.007	0.011	0.003	0.002	-0.009	-0.012
Lysozyme	-0.005	-0.079	-0.079	-0.073	0.013	0.014	0.006	-0.081	-0.072
human Apotransferrin	-0.009	-0.016	-0.018	-0.018	-0.005	-0.008	-0.004	-0.014	-0.016
MHCII (DRA*0101/ DRB1*0401)	1.549	1.493	1.467	1.525	1.400	1.256	1.297	1.058	1.306

Figure 1c

Target Proteins	scFv						IgG
	17	2E	45	5C	73	8A	
DR4Dw4 Purified	+ ^a	+	+	+	+	+	+
Chimeric DR-IE purified	+	+	+	+	+	+	+
Lysozyme	- ^b	-	-	-	-	-	-
Transferrin	-	-	-	-	-	-	-
BSA	-	-	-	-	-	-	-
Human gamma globulin	-	-	-	-	-	-	-

a. In Elisa, OD (at 370 nm - background): > 1.5

b. In Elisa, OD (at 370 nm - background): < 0.5

Figure 1b

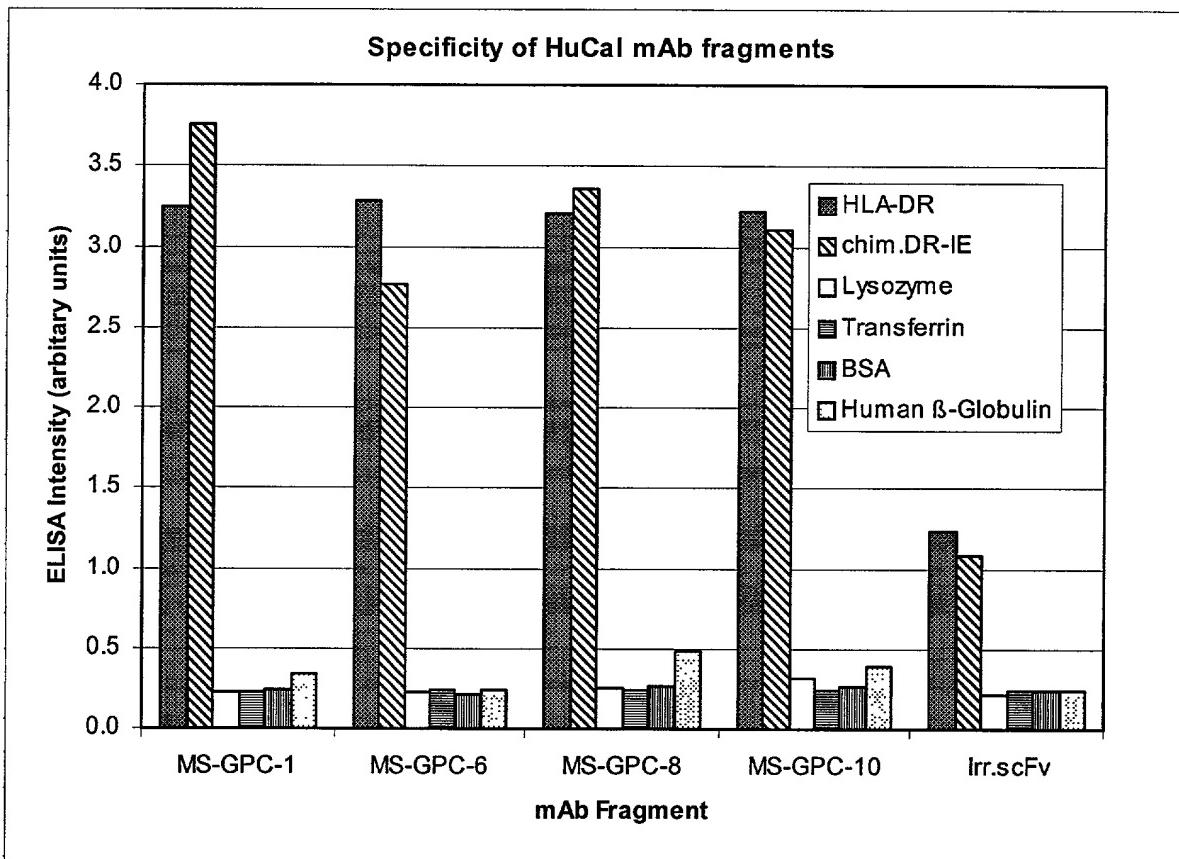


Figure 2

Cell Line	HLA-	DRB1*	scFv								IgG			
			17	2E	45	5C	73	8A	A1	B8	FD	159	170	1D09C3 1C7277 305D3
LG2	DR1	0101	+ ^a	+	- ^b	-	+	+	+	+	+	+	+	+
E4181324	DR2	15021	+	+	-	-	+	+	+	+	+	+	+	+
VAVY	DR3	0301	+	+	-	-	+	+	+	+	+	+	+	+
PRIESS	DR4Dw4	0401	+	+	+	+	+	+	+	+	+	+	+	+/ ^c
TS10	DR4Dw10	0402	+	+	-	+/-	+	+	+	+	+	+	+	+
BIN40	DR4Dw14	0404	+	+	+	+/-	+	+	+	+	+	+	+	+
TAB089	DR8	8031	+	+	-	+/-	+	+	+	+	+	+	+	+
DKB	DR9	9012	+	+	+/-	+/-	+	+	+	+	+	+	+	+/-
WT47	DR13	1302	+	+	-	+	+	+	+	+	+	+	+	+
TEM	DR14	1401	+	+	+/-	+	+	+	+	+	+	+	+	+
L105.1	DRw52	B3*0101	+	-	-	nt ^d	+	-	+	+	+	+	+	+
L257.6	DRw53	B4*0101	+/-	-	+	-	nt	+	+	+	nt	nt	+/-	+/-
L25.4	DPw4/w4.2	DP0103/0402	-	-	-	nt	+	-	+	+	nt	nt	+	+
L256.12	DPw2/w2.1	DP0202/0201	-	-	-	nt	+/-	-	-	nt	nt	nt	+/-	-
L21.3	DQ7/w2	DQ0201/0602	-	-	-	nt	+	-	+	nt	nt	nt	nt	-
Target Cell			% Cells Killed ^e											
PRIESS			75	20	28	32	22	89	33	59	75	34	1	5
												88	93	74

a. FACS analysis, mAb + FITC-anti human IgG₄, mean fluorescence intensity > 30.

b. Mean fluorescence intensity < 10.

c. Mean fluorescence intensity 10-30.

d. Not tested.

e. Based on viable cell recovery after treatment with 200 nM scFv plus 100 nM anti-FLAG or 50 nM mab at 37 °C for 4h. Determined by light.

Figure 3

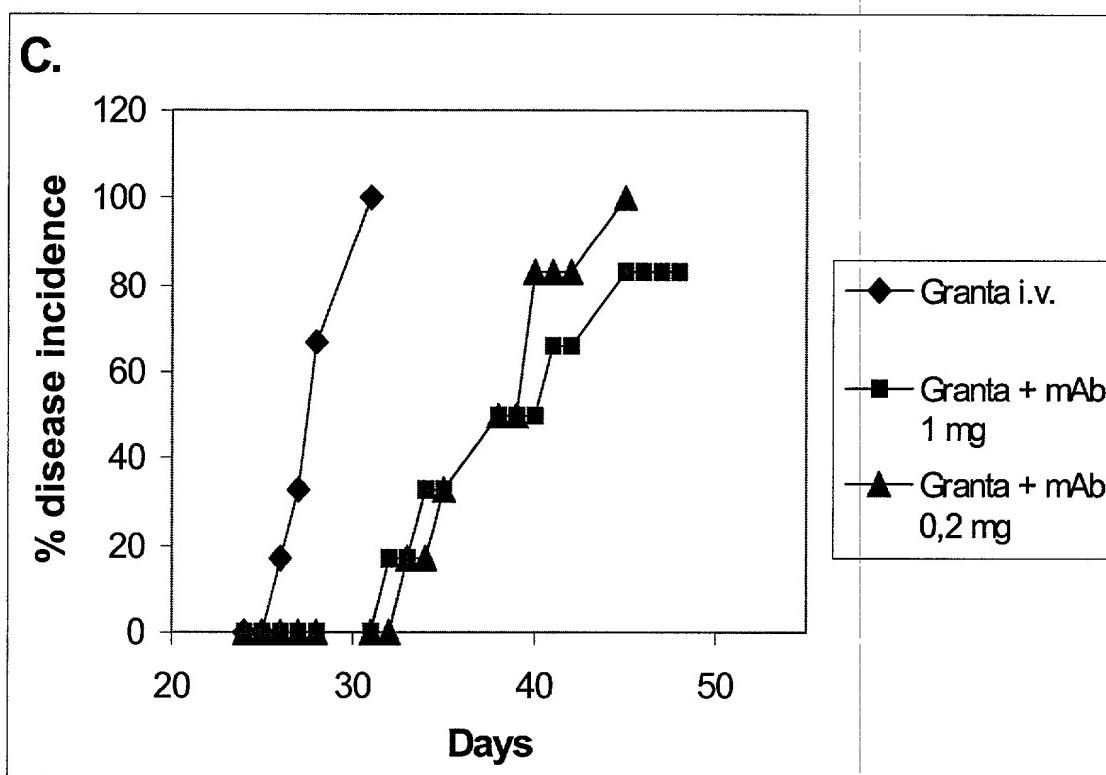


Figure 4

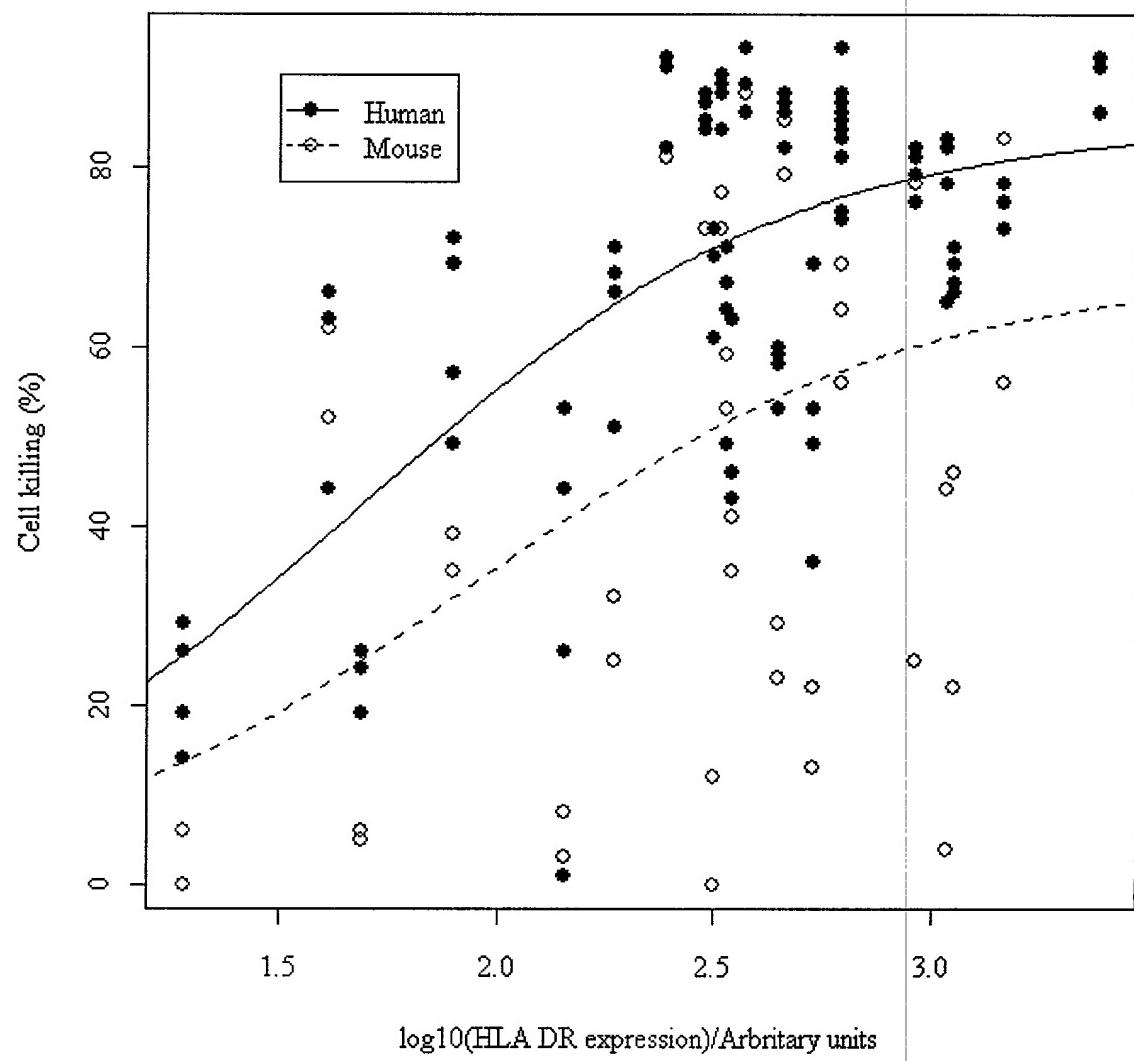


Figure 5

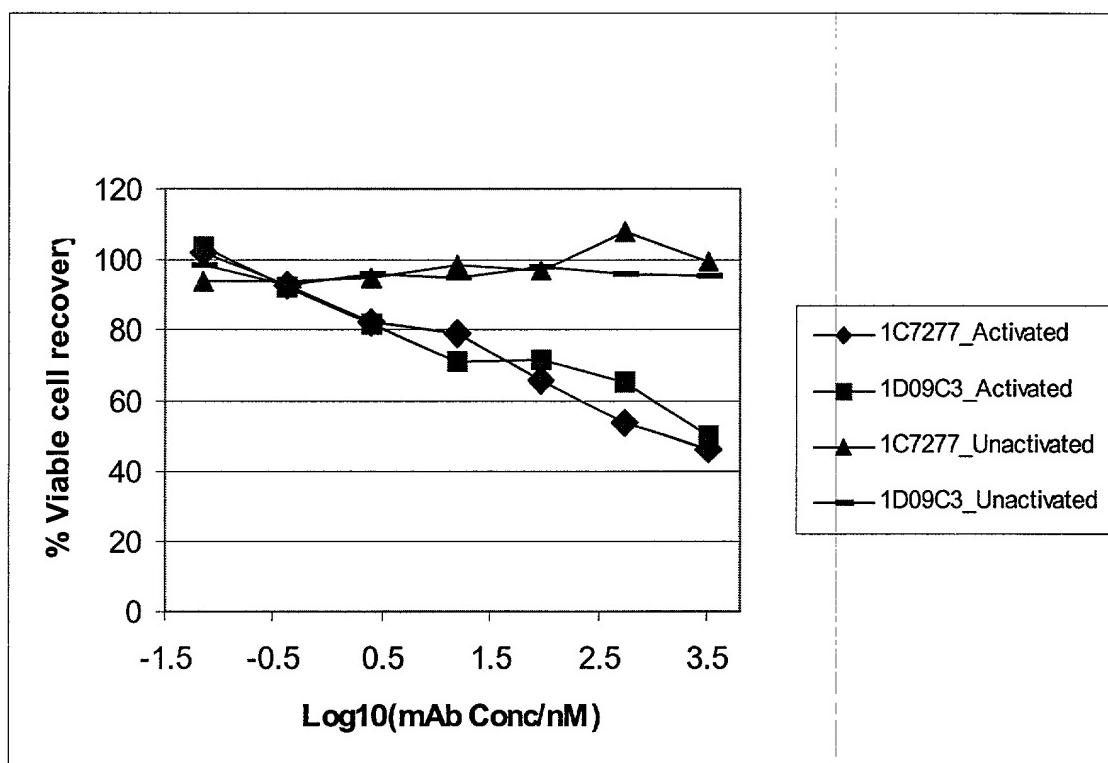


Figure 6a

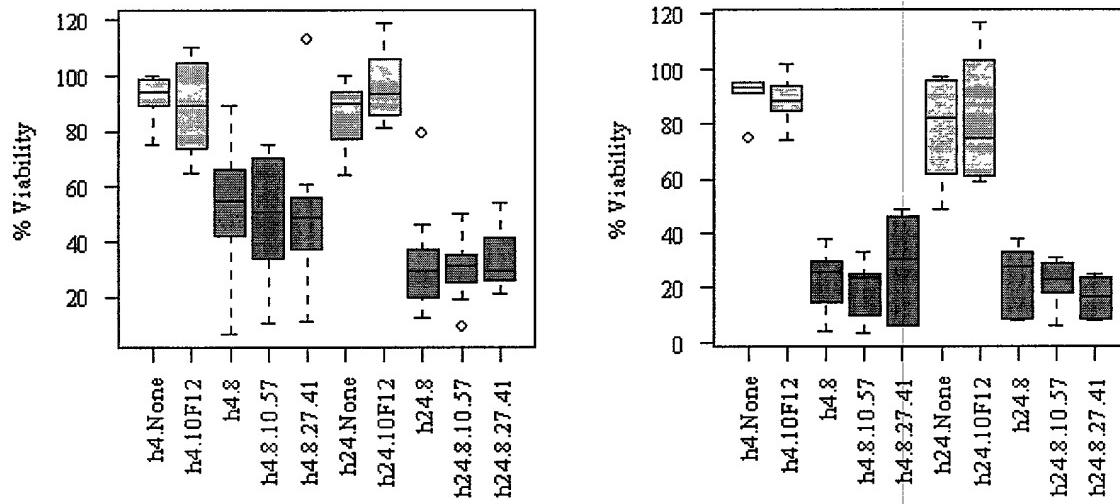


Figure 6b

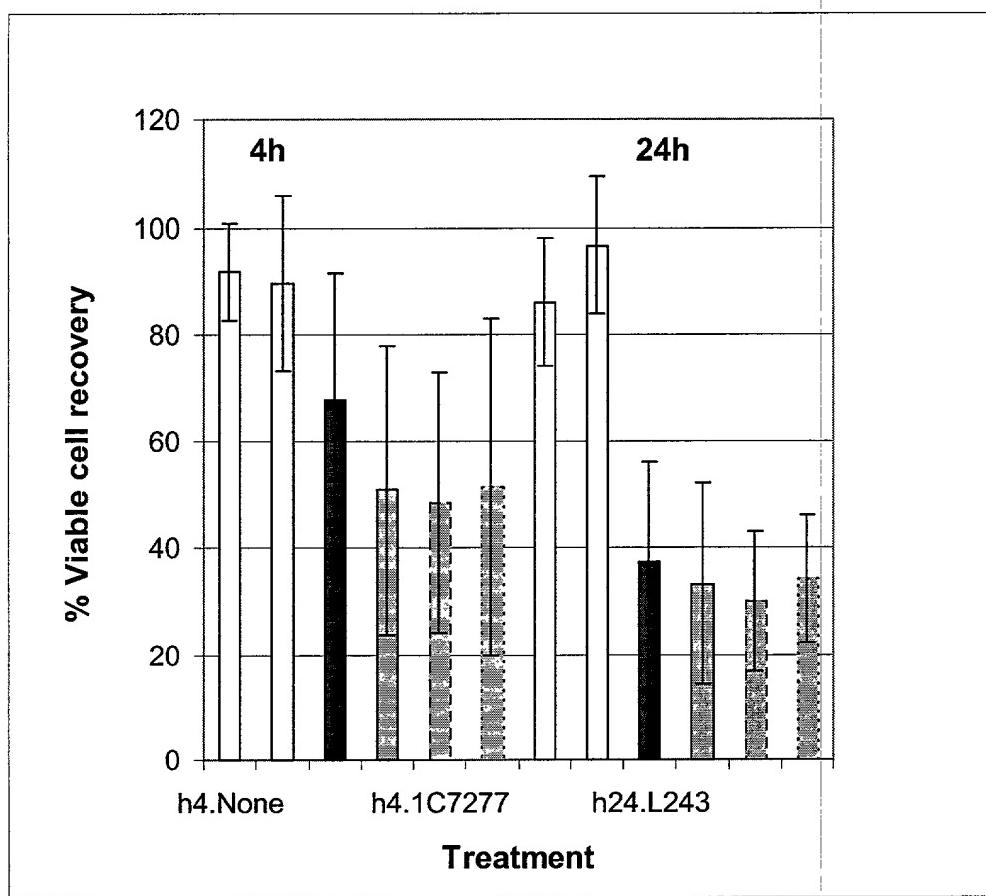


Figure 6c

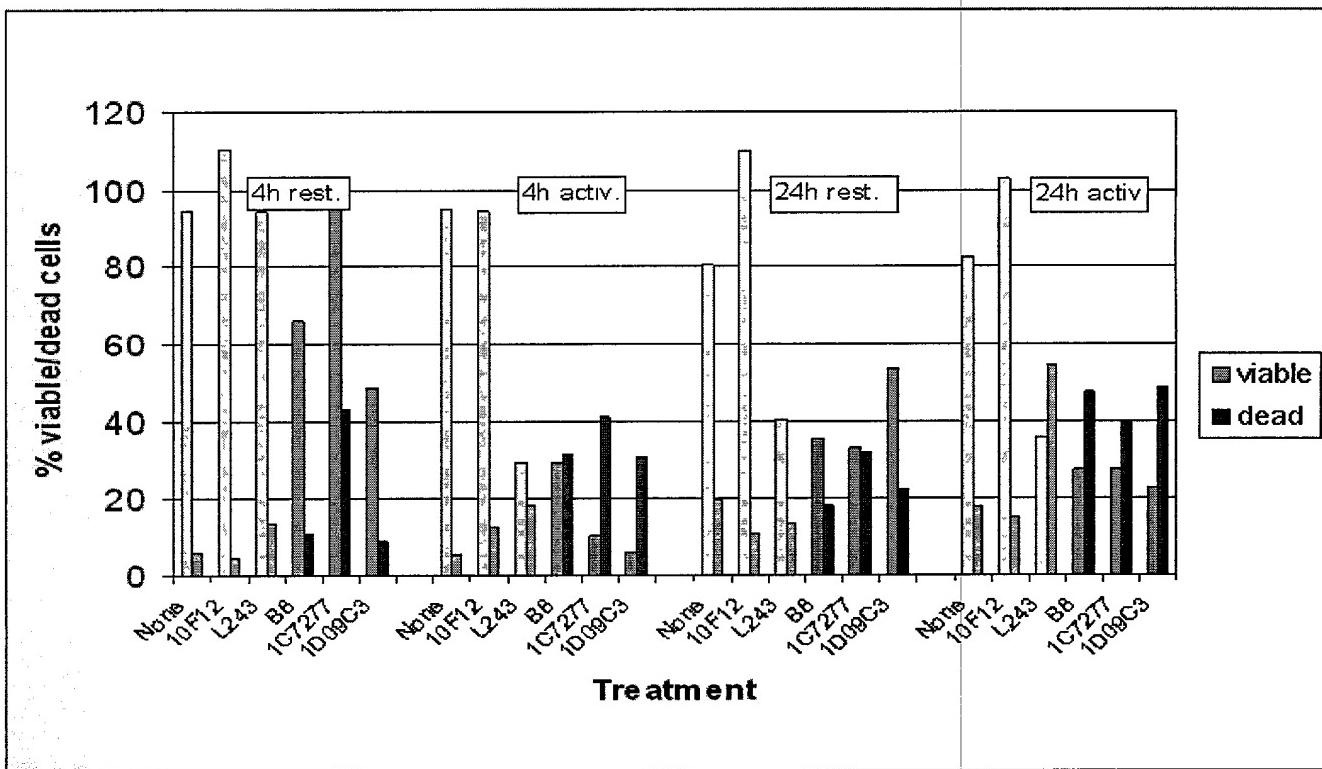


Figure 7a

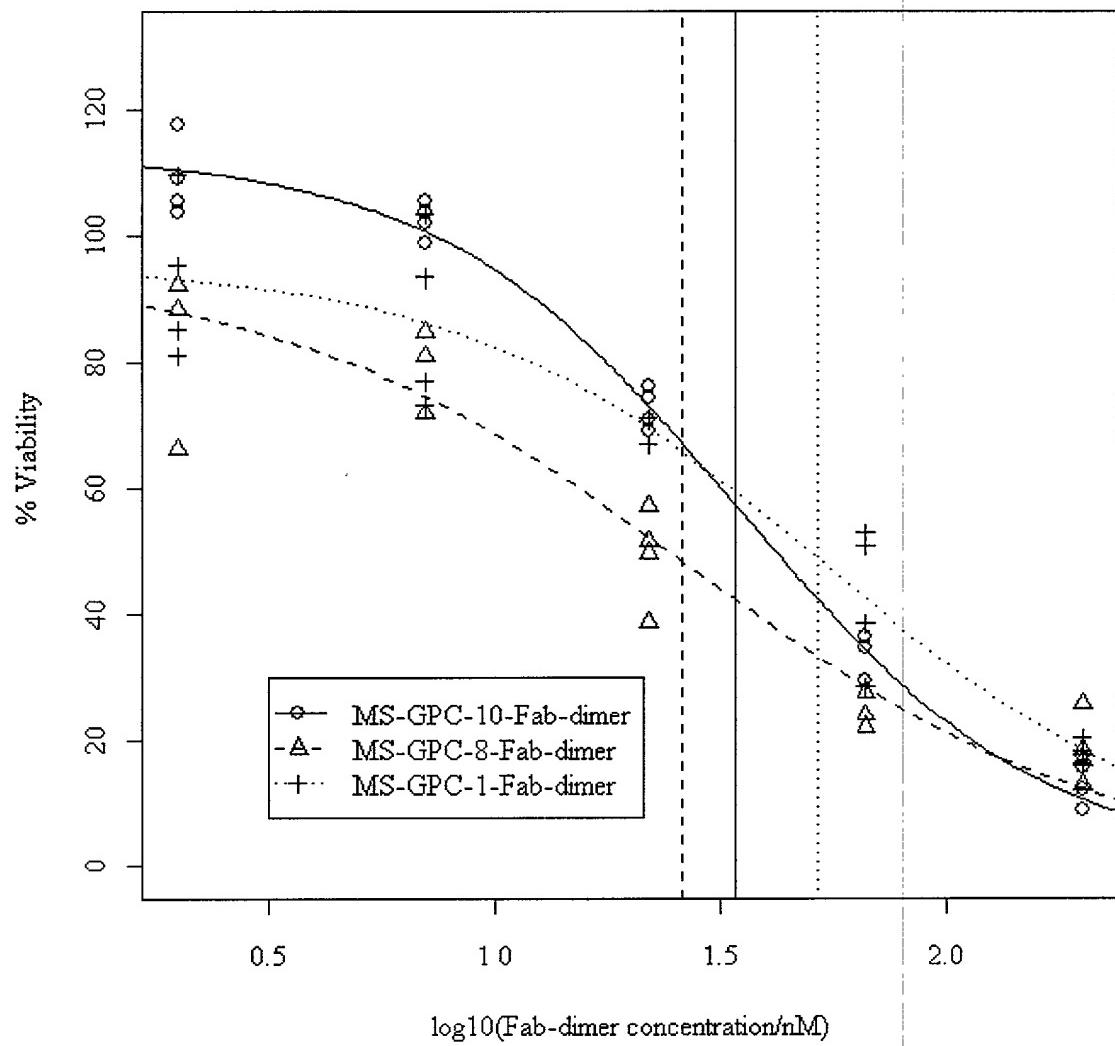


Figure 7b

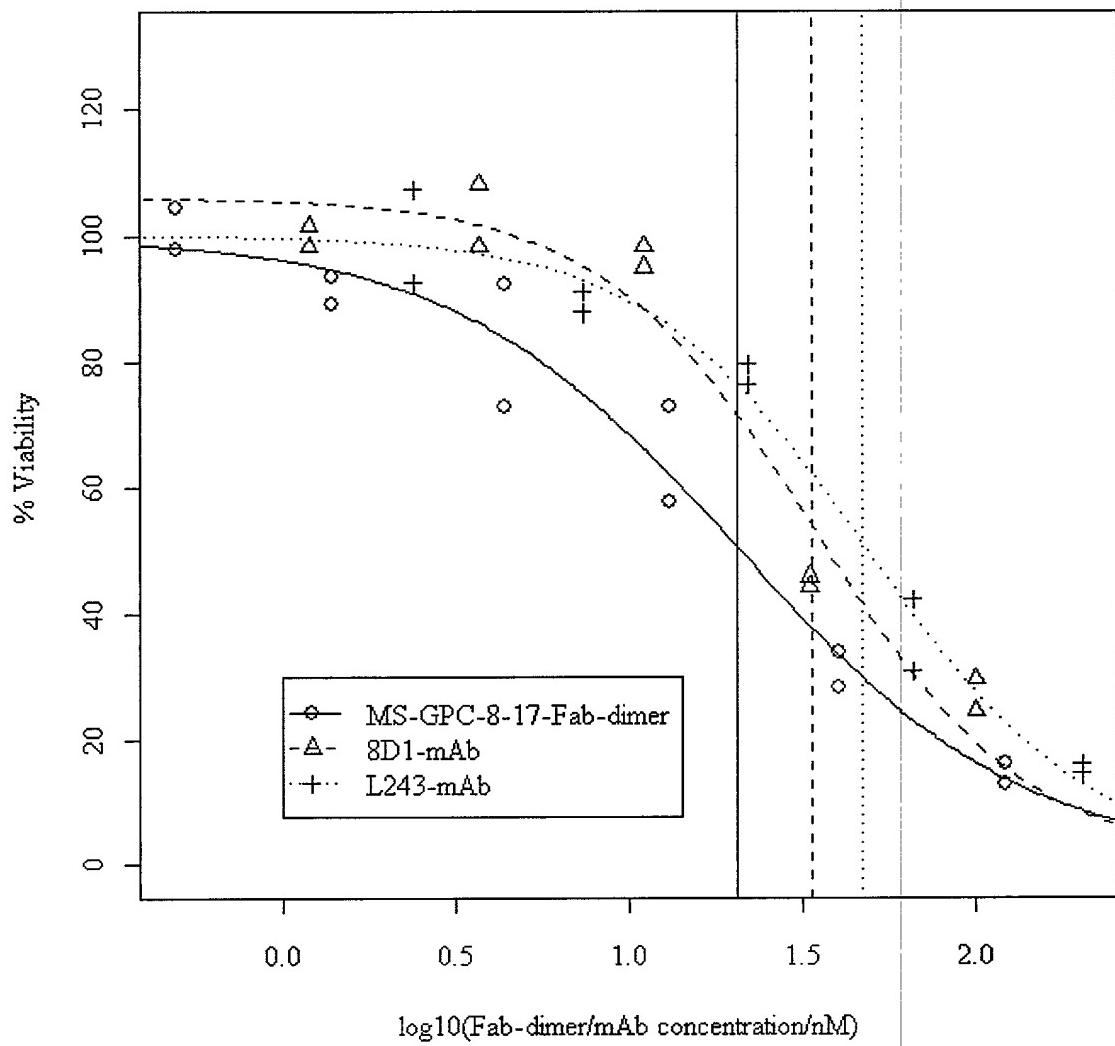


Figure 7c

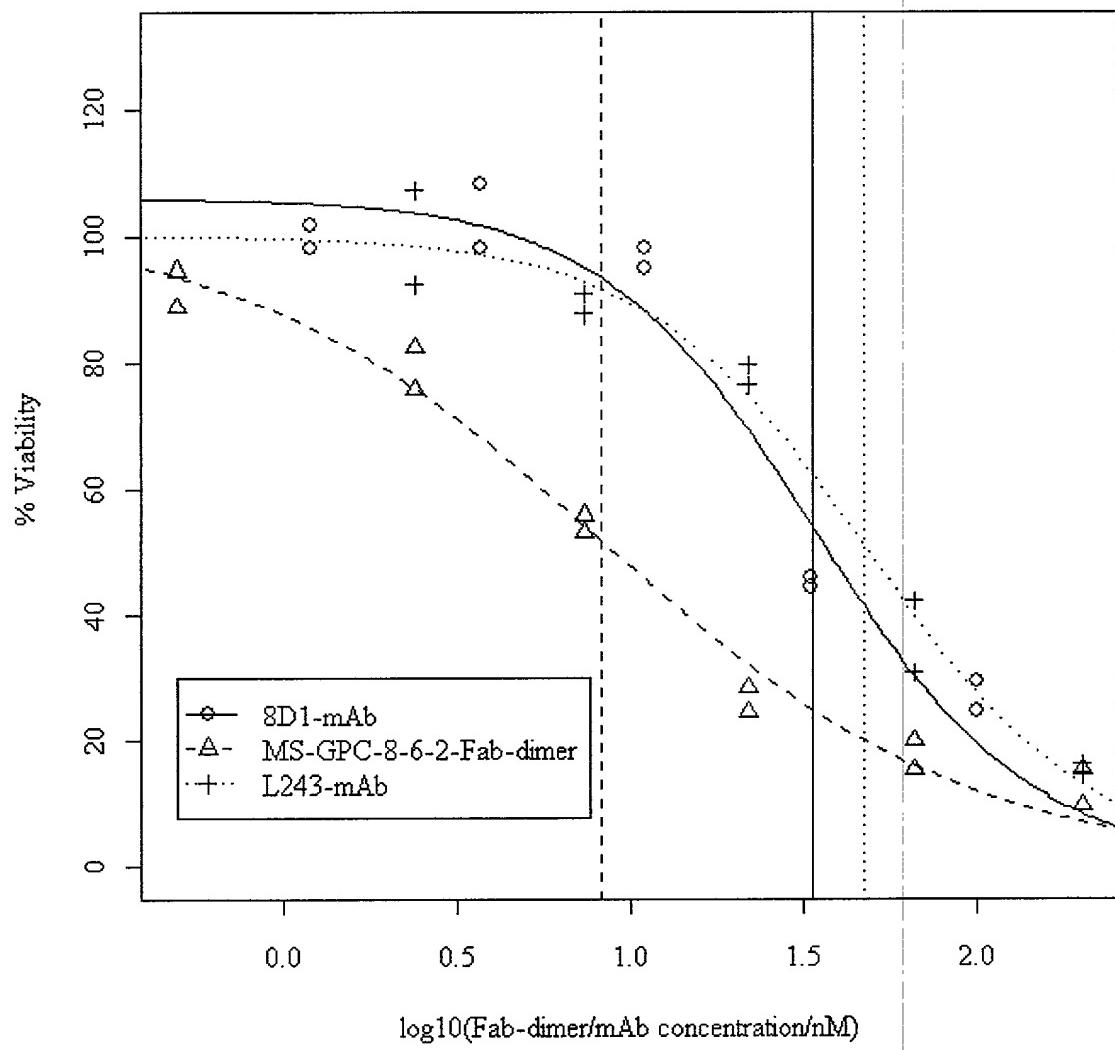


Figure 7d

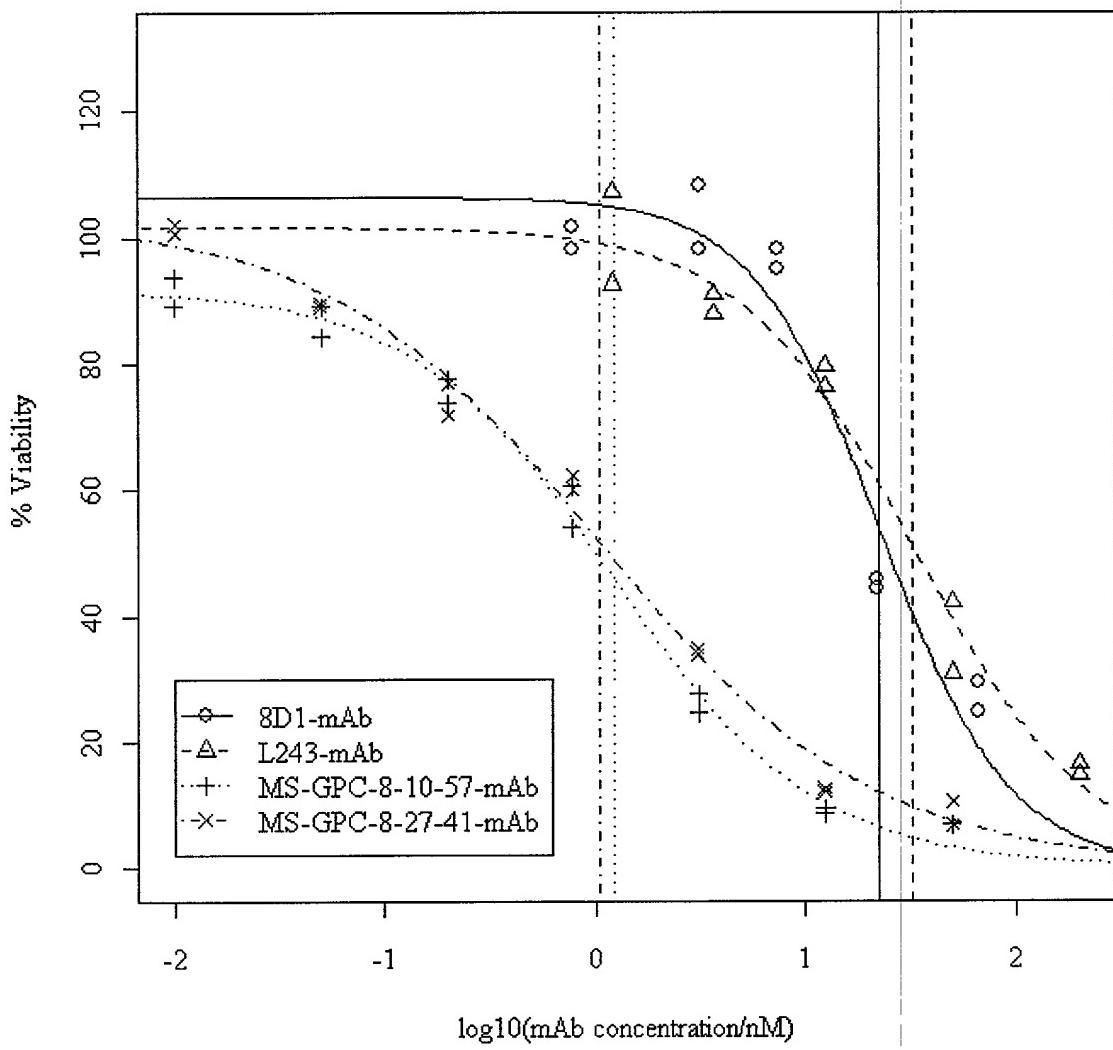


Figure 8a

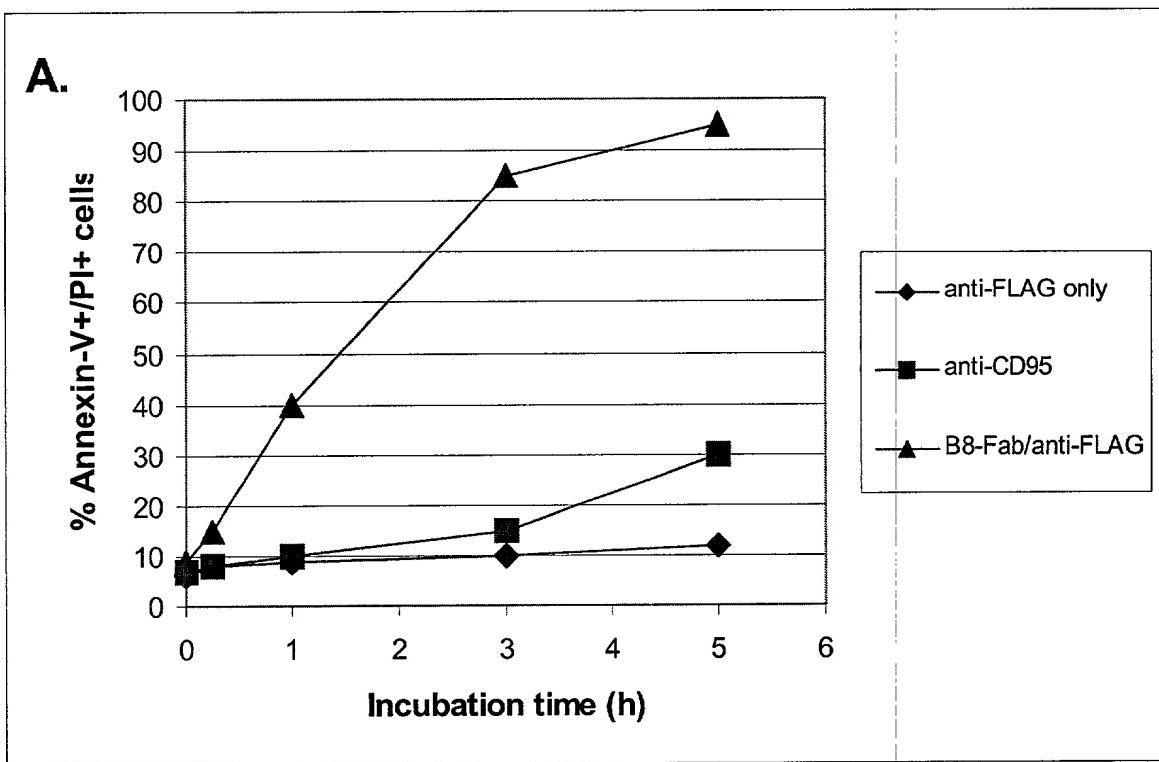


Figure 8b

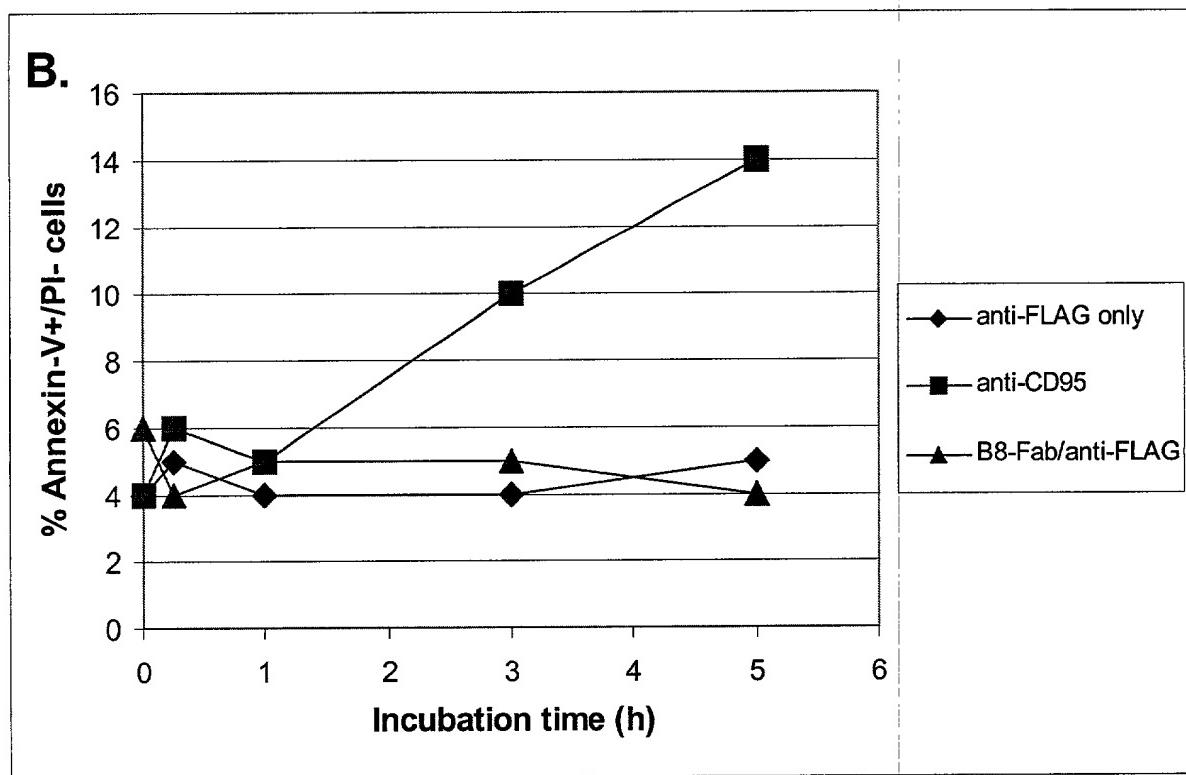


Figure 8c

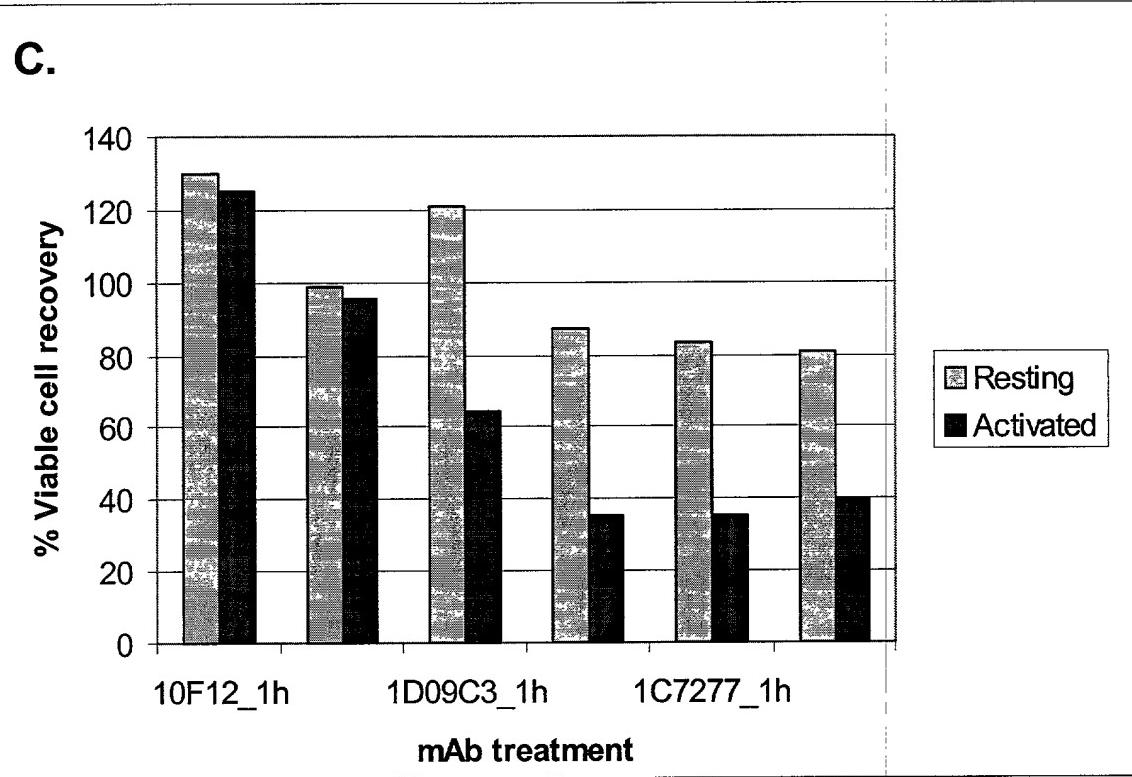


Figure 9a

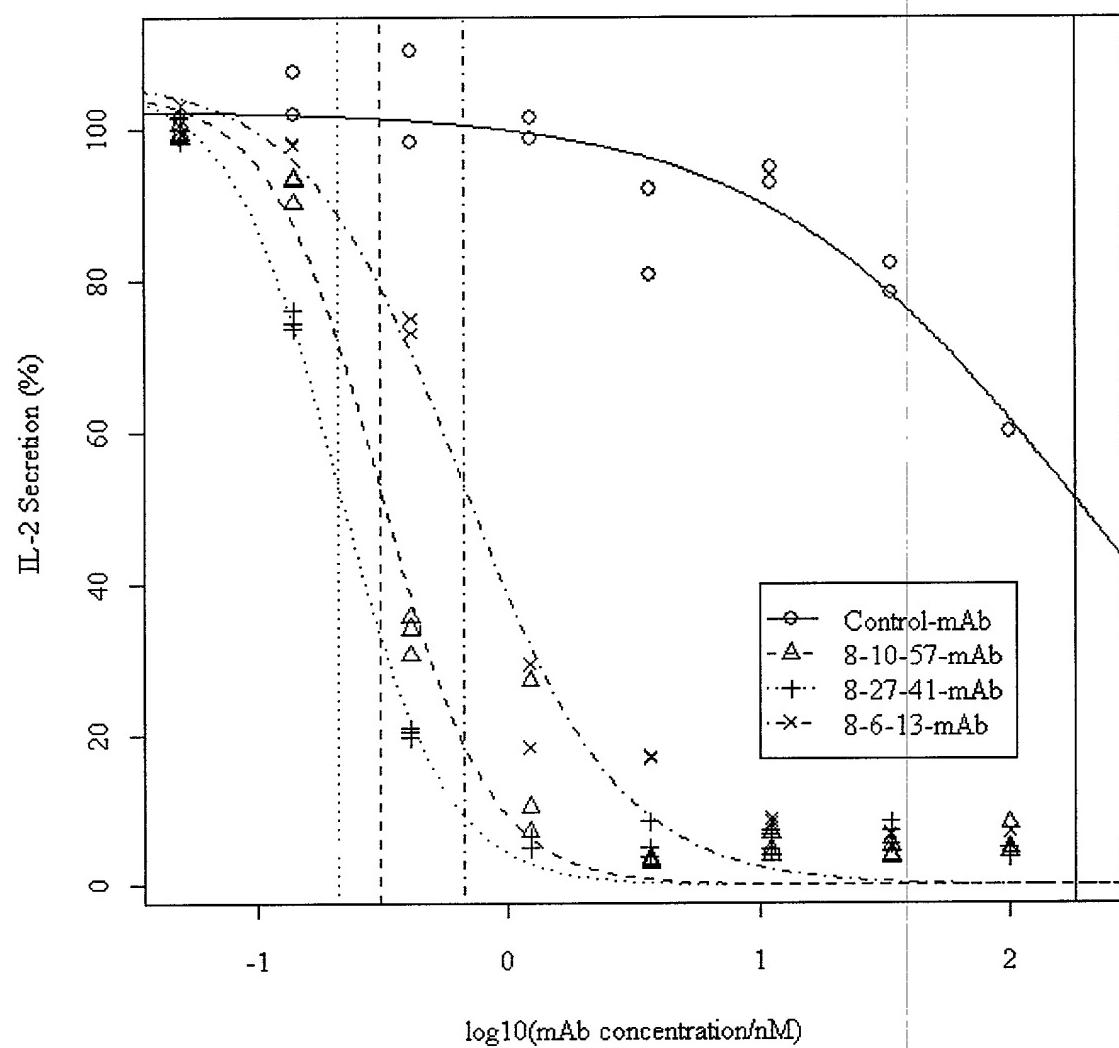


Figure 9b

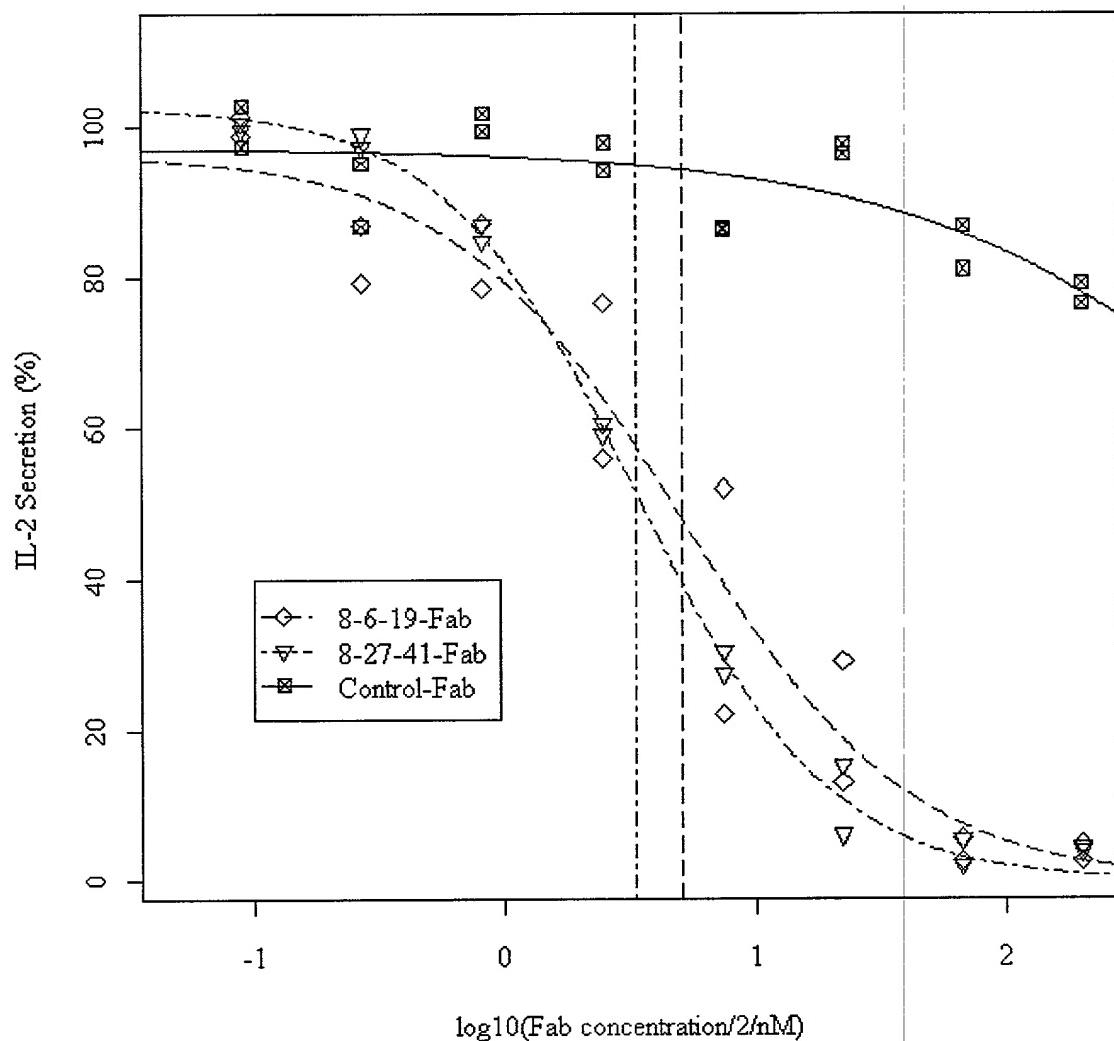


Figure 9c

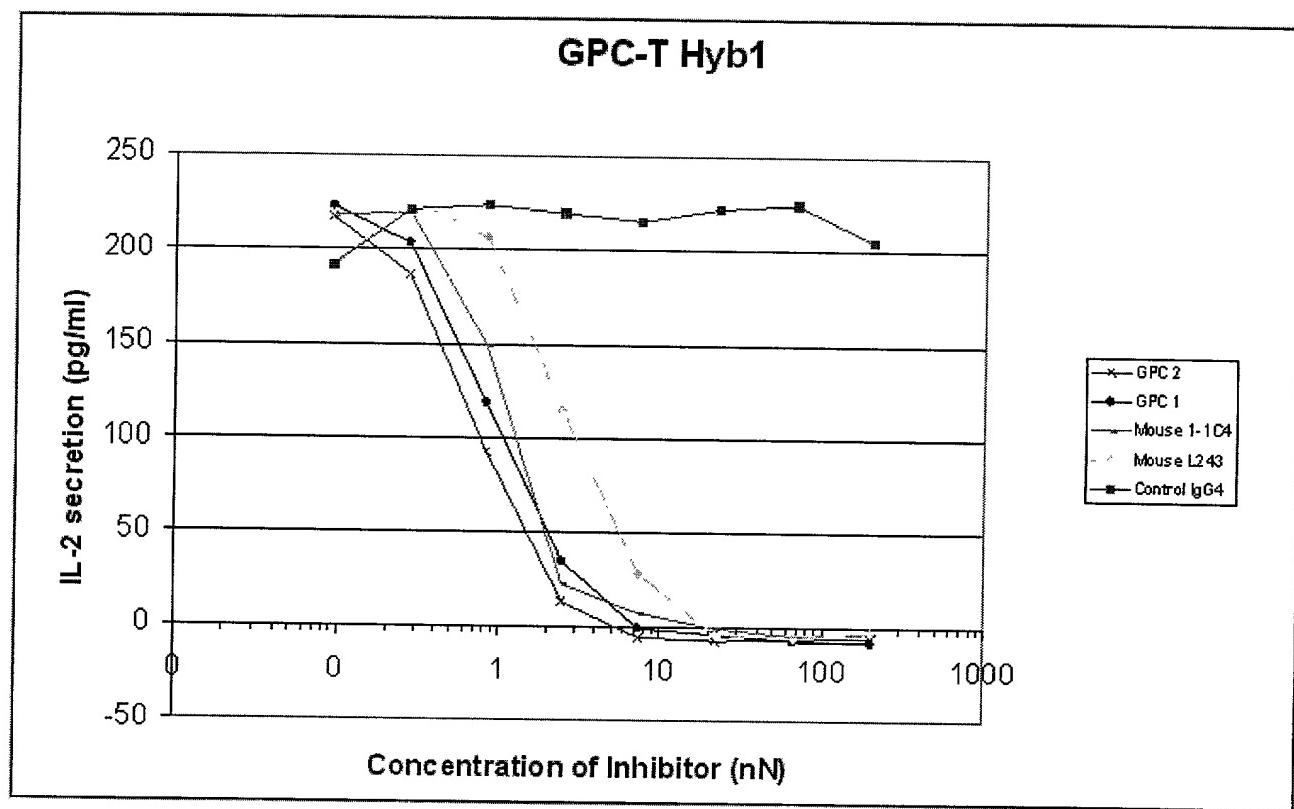


Figure 9d

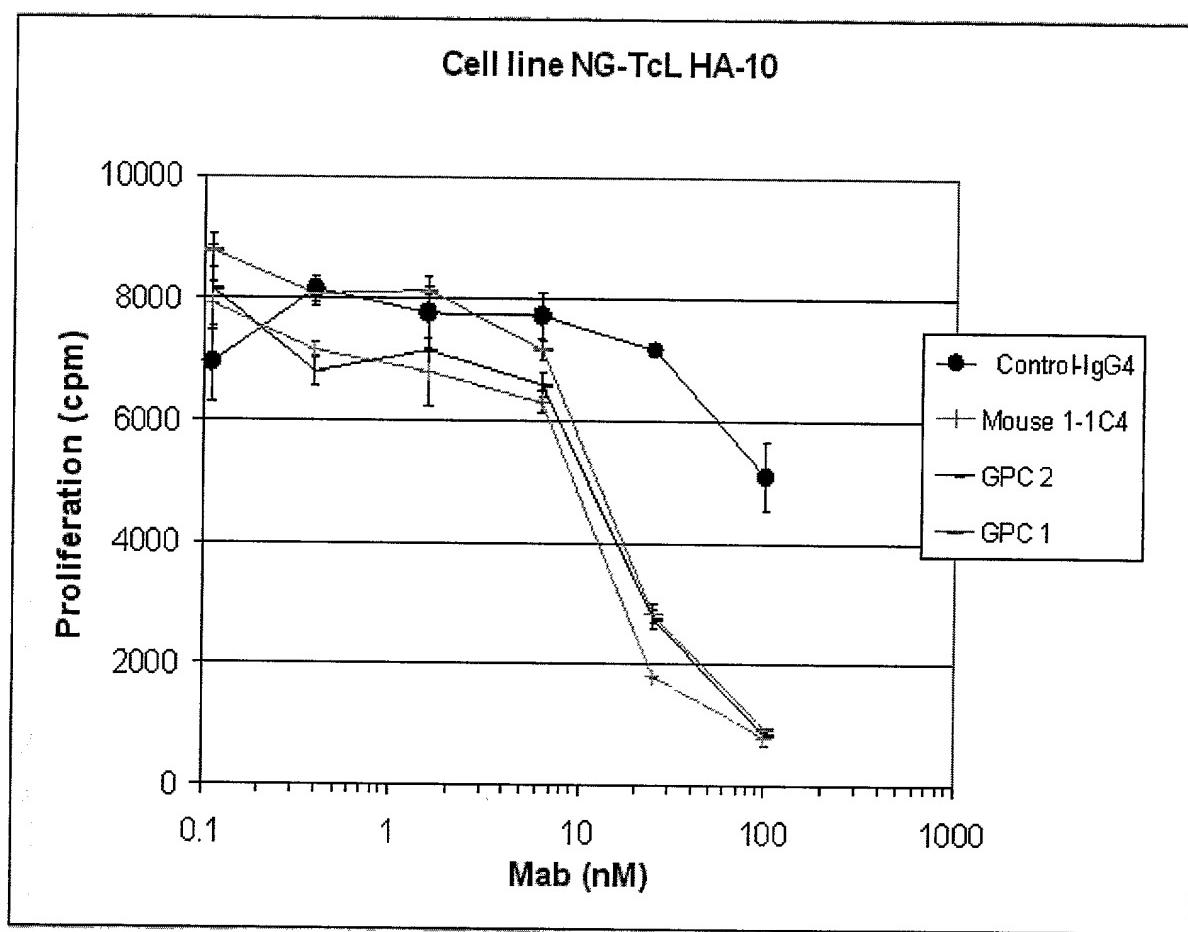


Figure 9e

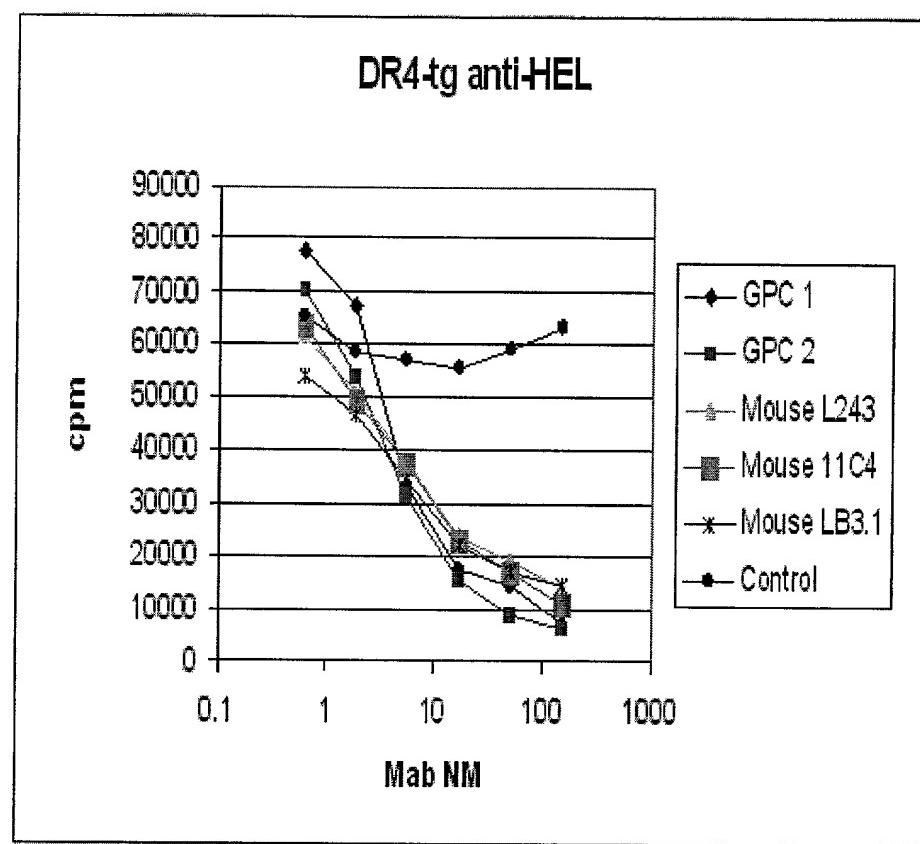


Figure 9f

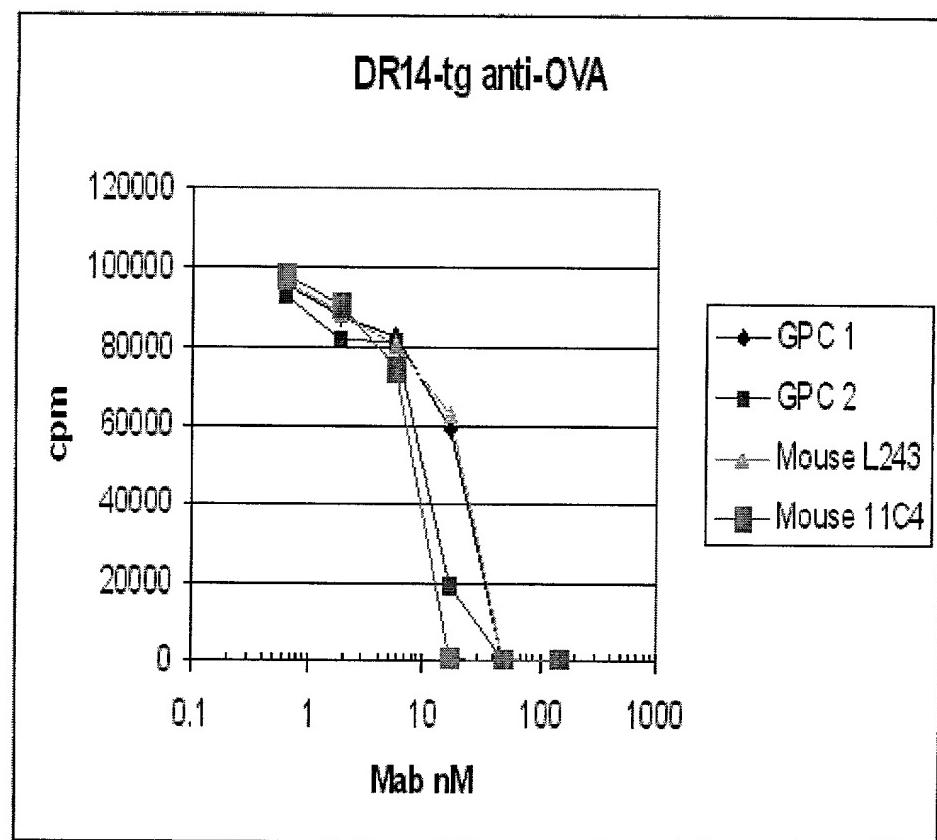


Figure 9g

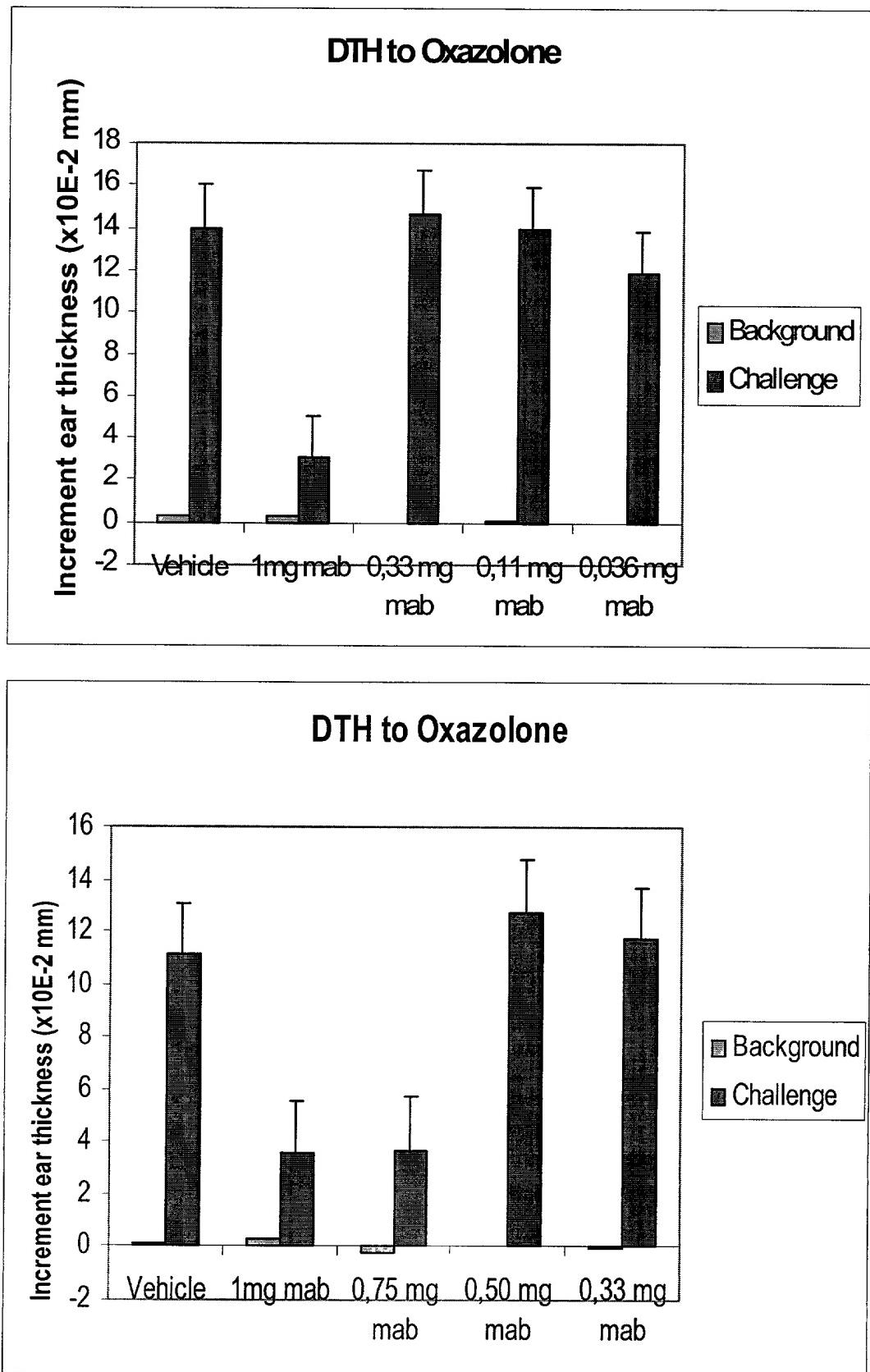
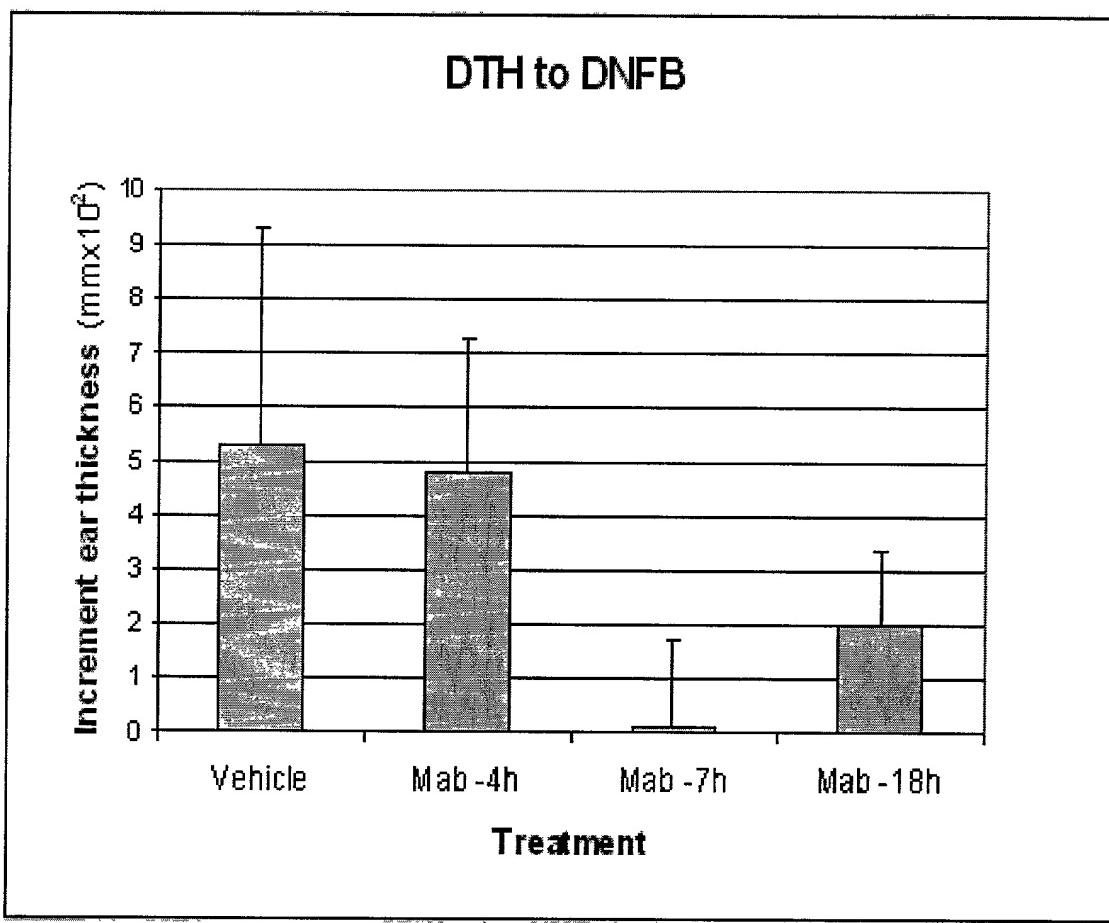
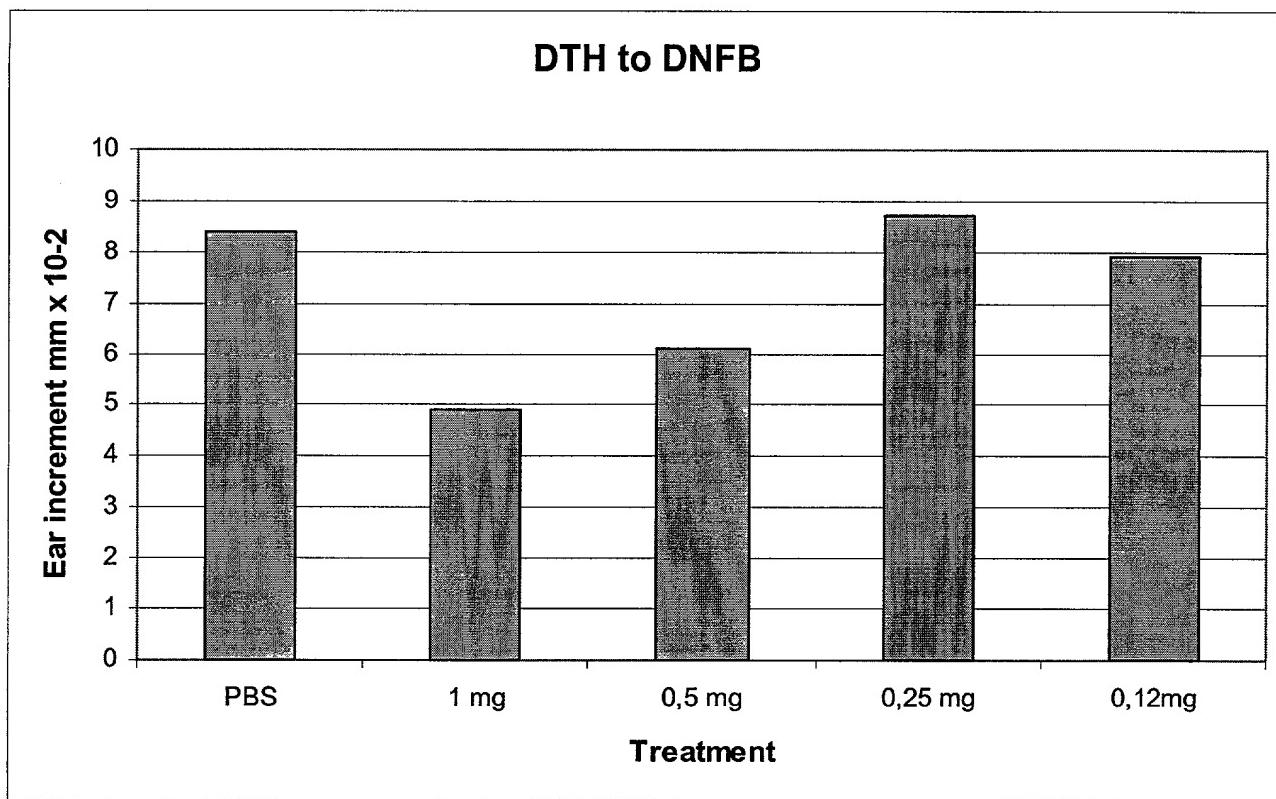


Figure 9h



mAb: 1D09C3

Figure 9I



mAb: 1D09C3

Figure 10

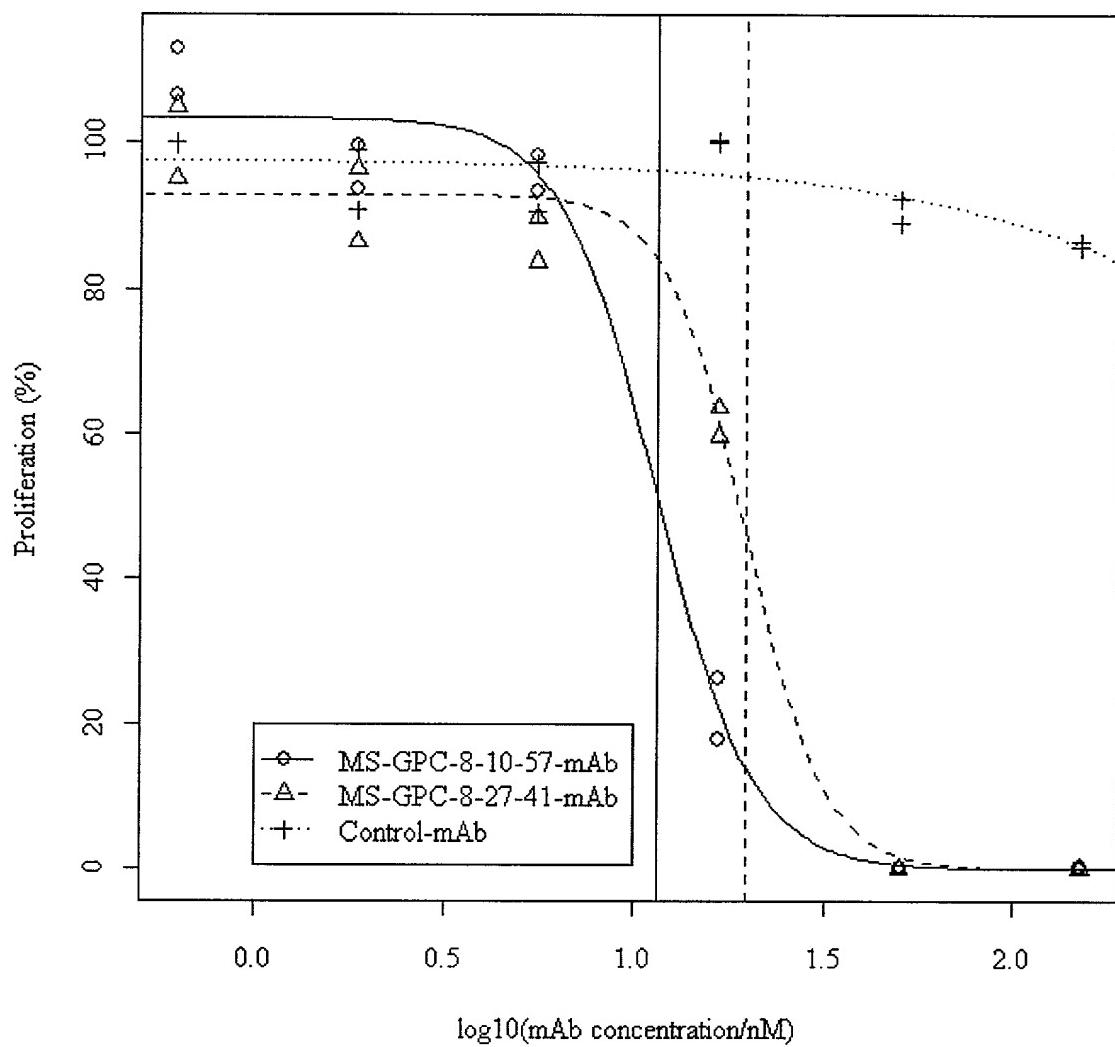


Figure 11

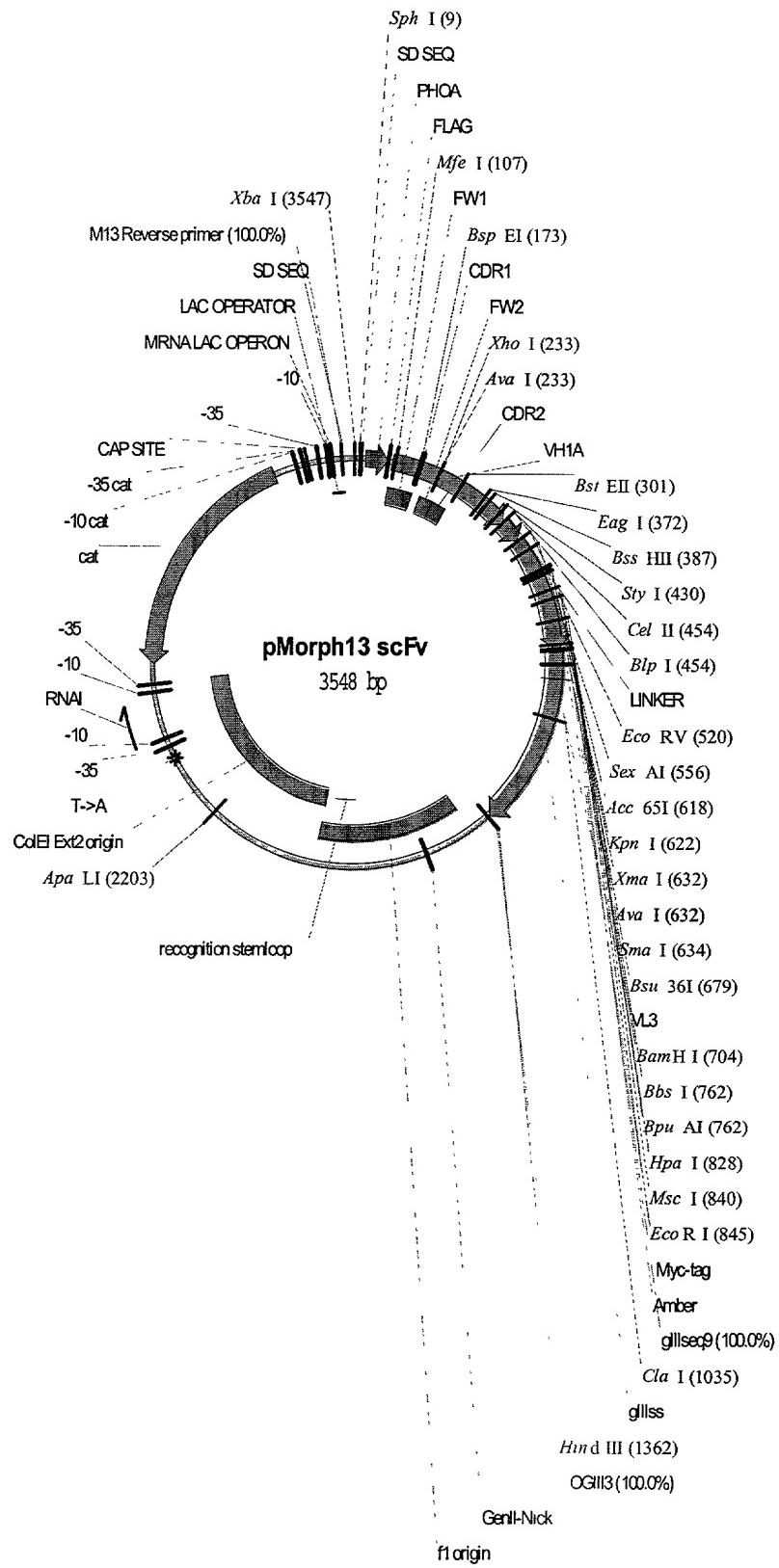


Figure 11 (cont.)

XbaISphI

~~~~~

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TCTCGTACGC ATCCTCTTT ATTTCAGTGT AACGTGACCG

51 ACTCTTACCG TTGCTCTTCA CCCCTGTTAC CAAAGCCGAC TACAAAGATG  
TGAGAATGGC AACGAGAAGT GGGGACAATG GTTTCGGCTG ATGTTCTAC

MfeI

~~~~~

101 AAGTGCAATT GGTCAGTCT GGCGCGGAAG TGAAAAAACC GGGCAGCAGC
TTCACGTTAA CCAAGTCAGA CCGCGCCTTC ACTTTTTGG CCCGTCGTCG

BspEI

~~~~~

151 GTGAAAGTGA GCTGCAAAGC CTCCGGAGGC ACTTTTAGCA GCTATGCGAT  
CACTTTCACT CGACGTTTCG GAGGCCTCCG TGAAAATCGT CGATACGCTA

XhoI

~~~~~

AvaI

~~~~~

201 TAGCTGGGTG CGCCAAGCCC CTGGGCAGGG TCTCGAGTGG ATGGGGCGCA  
ATCGACCCAC GCGGTTCGGG GACCCGTCCC AGAGCTCACC TACCCGCCGT

BstEII

~

251 TTATTCCGAT TTTTGGCACG GCGAACTACG CGCAGAAGTT TCAGGGCCGG  
AATAAGGCTA AAAACCGTGC CGCTTGATGC GCGTCTTCAA AGTCCCGGCC

BstEII

~~~~~

301 GTGACCATTA CCGCGGATGA AAGCACCAGC ACCCGTATA TGGAAC TGAG
CACTGGTAAT GGCGCCTACT TTCGTGGTCG TGGCGCATAT ACCTTGACTC

EagI

BssHII

~~~~~

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351 CAGCCTGCGT AGCGAAGATA CGGCCGTGTA TTATTGCGCG CGTTATTATG
GTCGGACGCA TCGCTTCTAT GCCGGCACAT AATAACGCGC GCAATAATAC

StyI

~~~~~

401 ATCGTATGTA TAATATGGAT TATTGGGGCC AAGGCACCCCT GGTGACGGTT  
TAGCATAACAT ATTATACCTA ATAACCCCGG TTCCGTGGGA CCACTGCCAA

BpuI

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CelII

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451 AGCTCAGCGG GTGGCGGTTC TGGCGCGGT GGGAGCGGTG GCGGTGGTTC  
TCGAGTCGCC CACCGCCAAG ACCGCCGCCA CCCTCGCCAC CGCCACCAAG

EcoRV

~~~~~

501 TGGCGGTGGT GGTTCCGATA TCGAACTGAC CCAGCCGCCT TCAGTGAGCG

ACCGCCACCA CCAAGGCTAT AGCTTGACTG GGTCGGCGGA AGTCACTCGC

SexAI

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551 TTGCACCAGG TCAGACCGCG CGTATCTCGT GTAGCGGCAGA TGCGCTGGGC  
AACGTGGTCC AGTCTGGCGC GCATAGAGCA CATCGCCGCT ACGCGACCCG

XmaI

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KpnI

SmaI

~~~~~

Acc65I

AvaI

~~~~~

601 GATAAAATACG CGAGCTGGTA CCAGCAGAAA CCCGGGCAGG CGCCAGTTCT
CTATTATGC GCTCGACCAT GGTCGTCTT GGGCCCGTCC GCGGTCAAGA

Bsu36I

~~~~~

651 GGTGATTAT GATGATTCTG ACCGTCCCTC AGGCATCCCG GAACGCTTTA  
CCACTAAATA CTACTAAGAC TGGCAGGGAG TCCGTAGGGC CTTGCGAAAT

BamHI

~~~~~

701 GCGGATCCAA CAGCGGCAAC ACCGCGACCC TGACCATTAG CGGCACTCAG
CGCCTAGGTT GTGCCGTTG TGGCGCTGGG ACTGGTAATC GCCGTGAGTC

BpuAI

~~~~~

BbsI

~~~~~

751 GCGGAAGACG AAGCGGATTA TTATTGCCAG AGCTATGACG CTCATATGCG
CGCCTTCTGC TTCGCCTAAT AATAACGGTC TCGATACTGC GAGTATAACGC

HpaI

MscI

EcoRI

~~~~~

801 TCCTGTGTTT GGCGGCGGCA CGAAGTTAAC CGTTCTTGGC CAGGAATTAG  
AGGACACAAA CCGCCGCCGT GCTTCAATTG GCAAGAACCG GTCCTTAAGC

851 AGCAGAAGCT GATCTCTGAG GAGGATCTGA ACTAGGGTGG TGGCTCTGGT  
TCGTCTTCGA CTAGAGACTC CTCCTAGACT TGATCCCACC ACCGAGACCA

901 TCCGGTGATT TTGATTATGA AAAGATGGCA AACGCTAATA AGGGGGCTAT  
AGGCCACTAA AACTAATACT TTTCTACCGT TTGCGATTAT TCCCCGATA

gIIIseq9 100.0%

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951 GACCGAAAAT GCCGATGAAA ACGCGCTACA GTCTGACGCT AAAGGCAAAC  
CTGGCTTTA CGGCTACTTT TGCGCGATGT CAGACTGCGA TTTCCGTTG

ClaI

~~~~~

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AACTAAGACA GCGATGACTA ATGCCACGAC GATAGCTACC AAAGTAACCA

1051 GACGTTCCG GCCTTGCTAA TGGTAATGGT GCTACTGGTG ATTTTGCTGG
CTGCAAAGGC CGGAACGATT ACCATTACCA CGATGACCAC TAAAACGACC

1101 CTCTAATTCC CAAATGGCTC AAGTCGGTGA CGGTGATAAT TCACCTTTAA
GAGATTAAGG GTTTACCGAG TTCAGCCACT GCCACTATTA AGTGGAAATT

1151 TGAATAATT CCGTCAATAT TTACCTTCCC TCCCTCAATC GGTTGAATGT
ACTTATTAAA GGCAGTTATA AATGGAAGGG AGGGAGTTAG CCAACTTACA

1201 CGCCCTTTG TCTTTGGCGC TGGTAAACCA TATGAATTCTT CTATTGATTG
GCGGGAAAAC AGAAACCGCG ACCATTGGT ATACTTAAAA GATAACTAAC

1251 TGACAAAATA AACTTATTCC GTGGTGTCTT TGCGTTCTT TTATATGTTG
ACTGTTTTAT TTGAATAAGG CACCACAGAA ACGCAAAGAA AATATACAAC

1301 CCACCTTTAT GTATGTATTT TCTACGTTG CTAACATACT GCGTAATAAG
GGTGGAAATA CATACTAAA AGATGCAAAC GATTGTATGA CGCATTATTC

HindIII

1351 GAGTCTTGAT AAGCTTGACC TGTGAAGTGA AAAATGGCGC AGATTGTGCG
CTCAGAACTA TTCGAACCTGG ACACCTCACT TTTTACCGCG TCTAACACGC
OGIII 100.0%

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1451 TAAAATTCGC GTTAAATTTT TGTTAAATCA GCTCATTTT TAACCAATAG
ATTTTAAGCG CAATTAAAAA ACAATTAGT CGAGTAAAAA ATTGGTTATC

1501 GCCGAAATCG GCaaaATCCC TTATAAATCA AAAGAATAGA CCGAGATAGG
CGGCTTAGC CGTTTAGGG AATATTTAGT TTTCTTATCT GGCTCTATCC

1551 GTTGAGTGT GTTCCAGTTT GGAACAAGAG TCCACTATTA AAGAACGTGG
CAACTCACAA CAAGGTCAAA CCTTGTCTC AGGTGATAAT TTCTTGCACC

1601 ACTCCAACGT CAAAGGGCGA AAAACCGTCT ATCAGGGCGA TGGCCCACTA
TGAGGTTGCA GTTTCCCGCT TTTTGGCAGA TAGTCCCGCT ACCGGGTGAT

1651 CGAGAACCAT CACCCTAACAT AAGTTTTTG GGGTCGAGGT GCCGTAAAGC
GCTCTGGTA GTGGGATTAG TTCAAAAAAC CCCAGCTCCA CGGCATTCG

1701 ACTAAATCGG AACCCCTAAAG GGAGCCCCCG ATTTAGAGCT TGACGGGGAA
TGATTTAGCC TTGGGATTTC CCTCGGGGGC TAAATCTCGA ACTGCCCTT

1751 AGCCGGCGAA CGTGGCGAGA AAGGAAGGGG AGAAAGCGAA AGGAGCGGGC
TCGGCCGCTT GCACCGCTCT TTCCCTCCCT TCTTTCGCTT TCCTCGCCCG

1801 GCTAGGGCGC TGGCAAGTGT AGCGGTCAAG CTGCGCGTAA CCACCACACC
CGATCCCGCG ACCGTTCACA TCGCCAGTGC GACCGCGATT GGTGGTGTGG

1851 CGCCCGCCTT AATGCGCCGC TACAGGGCGC GTGCTAGCCA TGTGAGCAAA
GCGGCGCGAA TTACGCGGCG ATGTCCCGCG CACGATCGGT ACACTCGTT

1901 AGGCCAGCAA AAGGCCAGGA ACCGTAAAAA GGCCGCGTTG CTGGCGTTT
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1951 TCCATAGGCT CCGCCCCCCT GACGAGCATC ACAAAATCG ACGCTCAAGT
AGGTATCCGA GGCGGGGGGA CTGCTCGTAG TGTGAGTTAGC TGCGAGTTCA

TGTCTTGCGTC

2001 CAGAGGTGGC GAAACCCGAC AGGACTATAA AGATACCAGG CGTTTCCCCC
GTCTCCACCG CTTTGGGCTG TCCTGATATT TCTATGGTCC GCAAAGGGGG

2051 TGGAAAGCTCC CTCGTGCGCT CTCCTGTTCC GACCCCTGCCG CTTACCGGAT
ACCTTCGAGG GAGCACGCGA GAGGACAAGG CTGGGACGGC GAATGGCCTA

2101 ACCTGTCCGC CTTTCTCCCT TCGGGAAAGCG TGGCGCTTTC TCATAGCTCA
TGGACAGGCG GAAAGAGGGA AGCCCTTCGC ACCCGAAAG AGTATCGAGT

2151 CGCTGTAGGT ATCTCAGTTC GGTGTAGGTC GTTCGCTCCA AGCTGGGCTG
GCGACATCCA TAGAGTCAAG CCACATCCAG CAAGCGAGGT TCGACCCGAC

~~~~~  
ApaLI  
~~~~~  
2201 TGTGCACGAA CCCCCCGTTC AGTCCGACCG CTGCGCCTTA TCCGGTAACT
ACACGTGCTT GGGGGGCAAG TCAGGCTGGC GACCGGAAAT AGGCCATTGA

2251 ATCGTCTTGA GTCCAACCCG GTAAGACACG ACTTATCGCC ACTGGCAGCA
TAGCAGAACT CAGGTTGGC CATTCTGTGC TGAATAGCGG TGACCGTCGT

2301 GCCACTGGTA ACAGGATTAG CAGAGCGAGG TATGTAGGCG GTGCTACAGA
CGGTGACCAT TGTCTTAATC GTCTCGCTCC ATACATCCGC CACGATGTCT

2351 GTTCTTGAAG TGGTGGCCTA ACTACGGCTA CACTAGAAGA ACAGTATTTG
CAAGAACTTC ACCACCGGAT TGATGCCGAT GTGATCTTCT TGTCTAAAC

2401 GTATCTGCGC TCTGCTGTAG CCAGTTACCT TCGGAAAAAG AGTTGGTAGC
CATAGACGCG AGACGACATC GGTCAATGGA AGCCTTTTC TCAACCATCG

2451 TCTTGATCCG GCAAACAAAC CACCGCTGGT AGCGGTGGTT TTTTTGTTG
AGAACTAGGC CGTTTGTTC GTGGCGACCA TCGCCACCAA AAAAACAAAC

2501 CAAGCAGCAG ATTACGCGCA GAAAAAAAGG ATCTCAAGAA GATCCTTGA
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2551 TCTTTCTAC GGGGTCTGAC GCTCAGTGGA ACGAAAATC ACGTTAAGGG
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2601 ATTTTGGTCA GATCTAGCAC CAGGCCTTA AGGGCACCAA TAACTGCCTT
TAAAACCAGT CTAGATCGTG GTCCGCAAAT TCCCGTGGTT ATTGACGGAA

2651 AAAAAAAATTA CGCCCCGCC TGCCACTCAT CGCAGTACTG TTGTAATTCA
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2701 TTAAGCATTG TGCCGACATG GAAGCCATCA CAAACGGCAT GATGAACCTG
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2751 AATCGCCAGC GGCATCAGCA CCTTGTGCC TTGCGTATAA TATTTGCCCA
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2801 TAGTGAAAAC GGGGGCGAAG AAGTTGTCCA TATTGGCTAC GTTTAAATCA
ATCACTTTG CCCCCGCTTC TTCAACAGGT ATAACCGATG CAAATTAGT

2851 AAACTGGTGA AACTCACCCA GGGATTGGCT GAGACGAAAA ACATATTCTC
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2901 AATAAAACCT TTAGGGAAAT AGGCCAGGTT TTCACCGTAA CACGCCACAT
TTATTTGGGA AATCCCTTA TCCGGTCCAA AAGTGGCATT GTGCGGTGTA

2951 CTTGCGAATA TATGTGTAGA AACTGCCGA AATCGTCGTG GTATTCACTC
GAACGCTTAT ATACACATCT TTGACGGCCT TTAGCAGCAC CATAAGTGAG

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GTCTCGCTAC TTTGCAAAG TCAAACGAGT ACCTTTGCC ACATTGTTCC

3051 GTAACACACTA TCCCATATCA CCAGCTCACC GTCTTCATT GCCATACGGA
CACTGTGAT AGGGTATAGT GGTGAGTGG CAGAAAGTAA CGGTATGCCT

3101 ACTCCGGGTG AGCATTTCATC AGGCGGGCAA GAATGTGAAT AAAGGCCGA
TGAGGCCAC TCGTAAGTAG TCCGCCGTT CTTACACTTA TTTCCGGCCT

3151 TAAAACTTGT GCTTATTTT CTTTACGGTC TTTAAAAAGG CCGTAATATC
ATTGGAAACA CGAATAAAAAA GAAATGCCAG AAATTTTCC GGCATTATAG

3201 CAGCTGAACG GTCTGGTTAT AGGTACATTG AGCAACTGAC TGAAATGCC
GTCGACTTGC CAGACCAATA TCCATGTAAC TCGTTGACTG ACTTTACGGA

3251 CAAAATGTTC TTTACGATGC CATTGGATA TATCAACGGT GGTATATCCA
GTTTTACAAG AAATGCTACG GTAACCCTAT ATAGTTGCCA CCATATAGGT

3301 GTGATTTTT TCTCCATTT AGCTTCCTTA GCTCCTGAAA ATCTCGATAA
CACTAAAAAA AGAGGTAAAA TCGAAGGAAT CGAGGACTTT TAGAGCTATT

3351 CTCAAAAAAT ACGCCGGTA GTGATCTTAT TTCATTATGG TGAAAGTTGG
GAGTTTTTA TGCAGGCCAT CACTAGAATA AAGTAATACC ACTTTCAACC

3401 AACCTCACCC GACGTCTAAT GTGAGTTAGC TCACTCATTA GGCACCCAG
TTGGAGTGGG CTGCAGATTA CACTCAATCG AGTGAGTAAT CCGTGGGTC

3451 GCTTACACT TTATGCTTCC GGCTCGTATG TTGTGTGGAA TTGTGAGCGG
CGAAATGTGA AATACGAAGG CCGAGCATAAC AACACACCTT AACACTCGCC

M13 Reverse primer 100.0%

=====

XbaI

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TATTGTTAAA GTGTGTCCTT TGTCGATACT GGTACTAATG CTTAAAGA

Figure 12

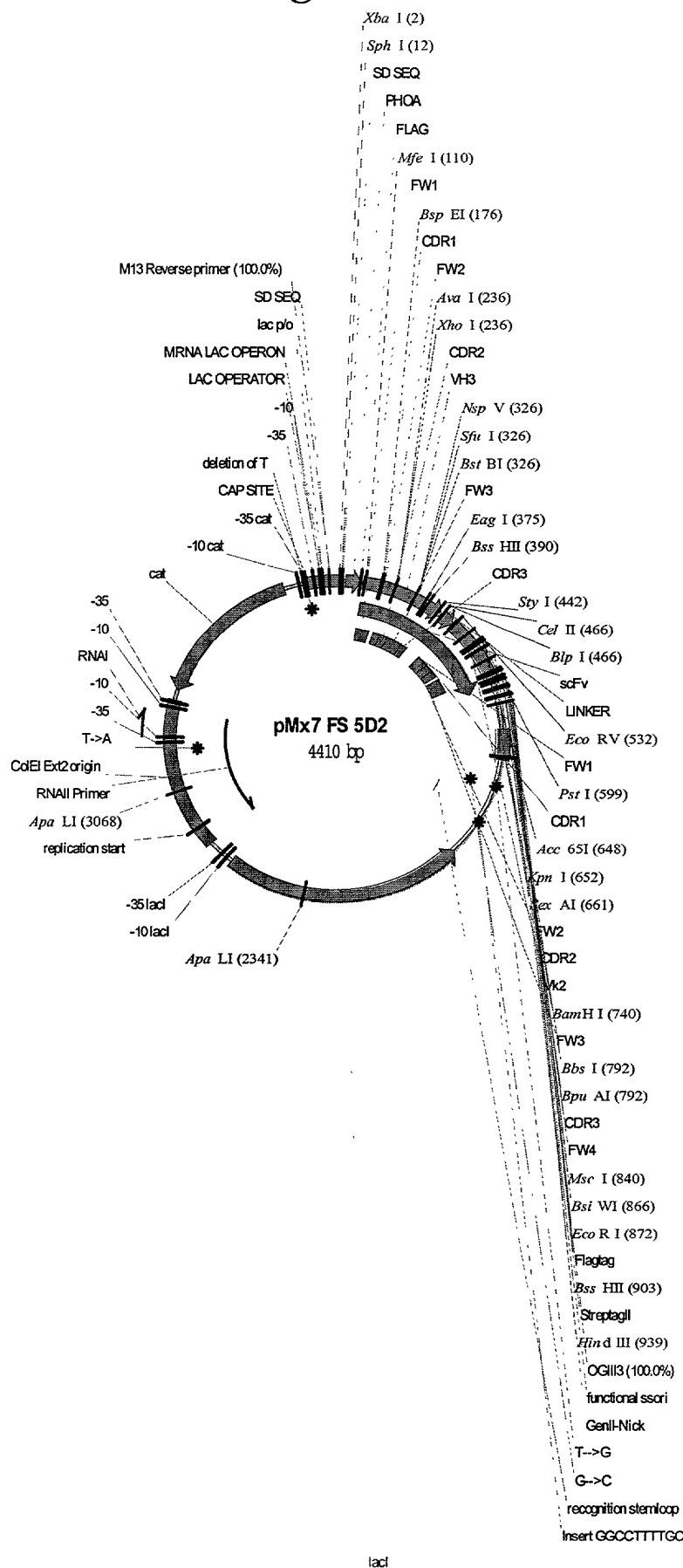


Figure 12 (cont)

XbaI SphI
~~~~~

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51 GGCACTCTTA CCGTTGCTCT TCACCCCTGT TACCAAAGCC GACTACAAAG  
CCGTGAGAAT GGCAACGAGA AGTGGGGACA ATGGTTTCGG CTGATGTTTC

MfeI  
~~~~~

101 ATGAAGTGCA ATTGGTGGAA AGCGGCCGCG GCCTGGTGCA ACCGGGCCGC
TACTTCACGT TAACCACCTT TCGCCGCCGC CGGACCACGT TGGCCCGCCG

BspEI
~~~~~

151 AGCCTGCGTC TGAGCTGCGC GGCTCCGGA TTTACCTTTA GCAGCTATGC  
TCGGACGCAG ACTCGACGCG CCGGAGGCCT AAATGGAAAT CGTCGATACG

XhoI  
~~~~~

AvaI
~~~~~

201 GATGAGCTGG GTGCGCCAAG CCCCTGGAA GGGTCTCGAG TGGGTGAGCG  
CTACTCGACC CACGCGGTTTC GGGGACCCTT CCCAGAGCTC ACCCACTCGC

251 CGATTAGCGG TAGCGCCGGC AGCACCTATT ATGCGGATAG CGTGAAAGGC  
GCTAATCGCC ATCGCCGCCG TCGTGGATAA TACGCCCTATC GCACTTCCG

BstBI  
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SfuI
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NspV  
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301 CGTTTTACCA TTTCACGTGA TAATTGAA AACACCCCTGT ATCTGCAAAT
GCAAAATGGT AAAGTGCACT ATTAAGCTT TTGTGGGACA TAGACGTTA

EagI BssHII
~~~~~ ~~~~~

351 GAACAGCCTG CGTGCAGAAG ATACGGCCGT GTATTATTGC GCGCGTGTAA  
CTTGTGGAC GCACGCCCTTC TATGCCGGCA CATAATAACG CGCGCACAAT

StyI  
~~~~~

401 AGAACGATTT TTCTCGTAAG AATTGGTTTG ATTATTGGGG CCAAGGCACC
TCTTCGTAAA AAGAGCATTG TTAACCAAAC TAATAACCCC GGTTCCGTGG

F00019344-1052

BlpI

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CelII

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451 CTGGTGACGG TTAGCTCAGC GGGTGGCGGT TCTGGCGGCG GTGGGAGCGG
GACCACTGCC AATCGAGTCG CCCACCGCCA AGACCGCCGC CACCCTCGCC

EcoRV

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501 TGGCGGTGGT TCTGGCGGTG GTGGTTCCGA TATCGTGTATG ACCCAGAGCC  
ACCGCCACCA AGACCGCCAC CACCAAGGCT ATAGCACTAC TGGGTCTCGG

PstI

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551 CACTGAGCCT GCCAGTGACT CGGGCGAGC CTGCGAGCAT TAGCTGCAGA
GTGACTCGGA CGGTCACTGA GGCCCCTCG GACGCTCGTA ATCGACGTCT

KpnI

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Acc65I

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601 AGCAGCCAAA GCCTGCTGCA TAGCAACGGC TATAACTATC TGGATTGGTA
TCGTCGGTTT CGGACGACGT ATCGTTGCCG ATATTGATAG ACCTAACCAT

KpnI

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Acc65I SexAI

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651 CCTTCAAAAA CCAGGTCAAA GCCCGCAGCT ATTAATTAT CTGGGCAGCA  
GGAAGTTTTT GGTCCAGTTT CGGGCGTCGA TAATTAAATA GACCCGTCGT

BamHI

~~~~~

701 ACCGTGCCAG TGGGGTCCCG GATCGTTTA GCGGCTCTGG ATCCGGCAC
TGGCACGGTC ACCCCAGGGC CTAGAAAAT CGCCGAGACC TAGGCCGTGG

BpuAI

~~~~~

BbsI

~~~~~

751 GATTTTACCC TGAAAATTAG CCGTGTGGAA GCTGAAGACG TGGGCGTGT
CTAAAATGGG ACTTTAATC GGCACACCTT CGACTTCTGC ACCCGCACAT

MscI

~~~~~

801 TTATTGCCAG CAGCATTATA CCACCCGCC GACCTTTGGC CAGGGTACGA  
ATAAACGGTC GTCGTAATAT GGTGGGGCGG CTGGAAACCG GTCCCCATGCT

BsiWI EcoRI

~~~~~

851 AAGTTGAAAT TAAACGTACG GAATTGACT ATAAAGATGA CGATGACAAA
TTCAACTTTA ATTTGCATGC CTTAAGCTGA TATTTCTACT GCTACTGTTT

BssHII

HindIII

~~~~~

901 GGCGCGCCGT GGAGCCACCC GCAGTTGAA AAATGATAAG CTTGACCTGT  
CCGCGCGCA CCTCGGTGGG CGTCAAACCTT TTTACTATTG GAACTGGACA  
OGIII3 100.0%

=====

951 GAAGTAAAAA ATGGCGCAGA TTGTGCGACA TTTTTTTGT CTGCCGTTA  
CTTCACTTT TACCGCGTCT AACACGCTGT AAAAAAAACA GACGGCAAAT  
OGIII3 100.0%

=====

1001 ATTAAAGGGG GGGGGGGGCC GGCCTGGGGG GGGGTGTACA TGAAATTGTA  
TAATTCCCCC CCCCCCCCCGG CC GGACCCCC CCCCACATGT ACTTTAACAT

1051 AACGTTAATA TTTTGTAAA ATTGCGTTA AATTTTGTT AAATCAGCTC  
TTGCAATTAT AAAACAATT TAAGCGCAAT TTAAAACAA TTTAGTCGAG

1101 ATTTTTAAC CAATAGGCCG AAATCGGCAA AATCCCTTAT AAATCAAAG  
TAAAAAAATTG GTTATCCGGC TTAGGCCGTT TTAGGGAATA TTTAGTTTC

1151 AATAGACCGA GATAGGGTTG AGTGTGTTTC CAGTTGGAA CAAGAGTCCA  
TTATCTGGCT CTATCCCAAC TCACAACAAG GTCAAACCTT GTTCTCAGGT

1201 CTATTAAAGA ACGTGGACTC CAACGTAAA GGGGAAAAAA CCGTCTATCA  
GATAATTCT TGACCTGAG GTTGCAGTTT CCCGCTTTT GGCAGATAGT

1251 GGGCGATGGC CCACTACGAG ACCATCACC CTAATCAAGT TTTTGGGGT  
CCCGCTACCG GGTGATGCTC TTGGTAGTGG GATTAGTTCA AAAAACCCCA

1301 CGAGGTGCCG TAAAGCACTA AATCGGAACC CTAAAGGGAG CCCCCGATTT  
GCTCCACGGC ATTTCGTGT TTAGCCTTGG GATTCCCTC GGGGGCTAAA

1351 AGAGCTTGAC GGGGAAAGCC GGCGAACGTG GCGAGAAAGG AAGGGAAGAA  
TCTCGAACTG CCCCTTCGG CCGCTTGCAC CGCTCTTCC TTCCCTTCTT

1401 AGCGAAAGGA GCGGGCGCTA GGGCGCTGGC AAGTGTAGCG GTCACGCTGC  
TCGCTTCCCT CGCCCGCGAT CCCGCGACCG TTCACATCGC CAGTGCACG

1451 GCGTAACCAC CACACCGCC GCGCTTAATG CGCCGCTACA GGGCGCGTGC  
CGCATTGGTG GTGTGGCGG CGCGAATTAC GCGGCGATGT CCCGCGCACG

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1501 TAGACTAGTG TTTAAACCGG ACCGGGGGGG GGCTTAAGTG GGCTGCAGAA  
ATCTGATCAC AAATTGGCC TGGCCCCCCC CCGAATTACAC CCGACGTTT  
  
1551 CAAAACGGCC TCCTGTCAGG AAGCCGCTTT TATCGGGTAG CCTCACTGCC  
GTTTGCCGG AGGACAGTCC TTCGGCGAAA ATAGCCCATC GGAGTGACGG  
  
1601 CGCTTTCCAG TCGGGAAACC TGTCGTGCCA GCTGCATCAG TGAATCGGCC  
GCGAAAGGTC AGCCCTTGG ACAGCACGGT CGACGTAGTC ACTTAGCCGG  
  
1651 AACGCGCGGG GAGAGGCGGT TTGCGTATTG GGAGCCAGGG TGGTTTTCT  
TTGCGCGCCC CTCTCCGCCA AACGCATAAC CCTCGGTCCC ACCAAAAAGA  
  
1701 TTTCACCAGT GAGACGGGCA ACAGCTGATT GCCCTTCACC GCCTGGCCCT  
AAAGTGGTCA CTCTGCCCGT TGTCGACTAA CGGGAAGTGG CGGACCGGG  
  
1751 GAGAGAGTTG CAGCAAGCGG TCCACGCTGG TTTGCCAG CAGGCGAAAA  
CTCTCTCAAC GTCGTTGCCA AGGTGCGACC AAACGGGTC GTCCGTTTT  
  
1801 TCCTGTTGA TGGTGGTCAG CGGCGGGATA TAACATGAGC TGTCCTCGGT  
AGGACAAACT ACCACCAGTC GCCGCCCTAT ATTGTACTCG ACAGGAGCCA  
  
1851 ATCGTCGTAT CCCACTACCG AGATGTCCGC ACCAACGCGC AGCCCGGACT  
TAGCAGCATA GGGTGATGGC TCTACAGGCG TGTTGCGCC TCAGGGCCTGA  
  
1901 CGGTAATGGC ACGCATTGCG CCCAGCGCCA TCTGATCGTT GGCAACCAGC  
GCCATTACCG TGCGTAACGC GGGTCGCGGT AGACTAGCAA CCGTTGGTCG  
  
1951 ATCGCAGTGG GAACGATGCC CTCATTCAAGC ATTTGCATGG TTTGTTGAAA  
TAGCGTCACC CTTGCTACGG GAGTAAGTCG TAAACGTACC AAACAACCTT  
  
2001 ACCGGACATG GCACTCCAGT CGCCTTCCCG TTCCGCTATC GGCTGAATT  
TGGCCTGTAC CGTGAGGTCA GCGGAAGGGC AAGGCGATAG CCGACTTAAA  
  
2051 GATTGCGAGT GAGATATTG TGCCAGCCAG CCAGACGCAG ACGCGCCGAG  
CTAACGCTCA CTCTATAAAT ACGGTCGGTC GGTCTGCGTC TGCGCGGCTC  
  
2101 ACAGAACTTA ATGGGCCAGC TAACAGCGCG ATTTGCTGGT GGCCCAATGC  
TGTCTTGAAT TACCCGGTCG ATTGTCGCGC TAAACGACCA CGGGTTACG  
  
2151 GACCAGATGC TCCACGCCA GTCGCGTACC GTCCCTCATGG GAGAAAATAA  
CTGGTCTACG AGGTGCGGGT CAGCGCATGG CAGGAGTACC CTCTTTATT  
  
2201 TACTGTTGAT GGGTGTCTGG TCAGAGACAT CAAGAAATAA CGCCGGAACA  
ATGACAACTA CCCACAGACC AGTCTCTGTA GTTCTTTATT GCGGCCTTGT  
  
2251 TTAGTGCAGG CAGCTTCCAC AGCAATAGCA TCCTGGTCAT CCAGCGGATA  
AATCACGTCC GTCGAAGGTG TCGTTATCGT AGGACCAGTA GGTCGCCTAT

ApaLI

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2301 GTTAATAATC AGCCCACGTGA CACGTTGCGC GAGAAGATTG TGCACCGCCG
CAATTATTAG TCGGGTGACT GTGCAACGCG CTCTTCTAAC ACGTGGCGGC

2351 CTTTACAGGC TTGACGCCG CTTCGTTCTA CCATCGACAC GACCACGCTG
GAAATGTCCG AAGCTGCGC GAAGCAAGAT GGTAGCTGTG CTGGTGCAC

40001934-2135

2401 GCACCCAGTT GATCGGCGCG AGATTTAAC CCGCGACAA TTTGCGACGG
CGTGGGTCAA CTAGCCGCGC TCTAAATTAG CGGCCTGTT AACGCTGCC

2451 CGCGTGCAGG GCCAGACTGG AGGTGGCAAC GCCAATCAGC AACGACTGTT
GCGCACGTCC CGGTCTGACC TCCACC GTGTTAGTCG TTGCTGACAA

2501 TGCCCGCCAG TTGTTGTGCC ACGCGGTTAG GAATGTAATT CAGCTCCGCC
ACGGGCGGTC AACAACACGG TGCGCCAATC CTTACATTAA GTCGAGGC

2551 ATCGCCGCTT CCACTTTTC CCGCGTTTC GCAGAAACGT GGCTGGCCTG
TAGCGCGAA GGTAAAAAG GGCGAAAAG CGTCTTGCA CCGACCGGAC

2601 GTTCACCAACG CGGGAAACGG TCTGATAAGA GACACCGGA TACTCTGCCA
CAAGTGGTGC GCCCTTGCC AGACTATTCT CTGTGGCCGT ATGAGACGCT

2651 CATCGTATAA CGTTACTGGT TTCACATTCA CCACCCGTAA TTGACTCTCT
GTAGCATATT GCAATGACCA AAGTGTAAAGT GGTGGGACTT AACTGAGAGA

2701 TCCGGGCGCT ATCATGCCAT ACCCGGAAAG GTTTGCGCC ATTGATGCT
AGGCCCGCGA TAGTACGGTA TGGCGCTTTC CAAACCGGG TAAGCTACGA

2751 AGCCATGTGA GCAAAAGGCC AGCAAAAGGC CAGGAACCGT AAAAAGGCCG
TCGGTACACT CGTTTCCGG TCGTTTCCGG GTCCTGGCA TTTTCCGGC

2801 CGTTGCTGGC GTTTTCCAT AGGCTCCGCC CCCCTGACGA GCATCACAAA
GCAACGACCG CAAAAAGGTA TCCGAGGCCGG GGGGACTGCT CGTAGTGT

2851 AATCGACGCT CAAGTCAGAG GTGGCGAAAC CCGACAGGAC TATAAAGATA
TTAGCTGCGA GTTCAGTCTC CACCGCTTG GGCTGTCTG ATATTCTAT

2901 CCAGGCGTTT CCCCCCTGGAA GCTCCCTCGT GCGCTCTCCT GTTCCGACCC
GGTCCGAAA GGGGGACCTT CGAGGGAGCA CGCGAGAGGA CAAGGCTGGG

2951 TGCCGCTTAC CGGATAACCTG TCCGCCTTC TCCCTCGGG AAGCGTGGCG
ACGGCGAATG GCCTATGGAC AGGCGGAAAG AGGGAAGCCC TTCGCACCGC

3001 CTTTCTCATA GCTCACCGCTG TAGGTATCTC AGTCGGTGT AGTCGTTCG
GAAAGAGTAT CGAGTGCAC ATCCATAGAG TCAAGCCACA TCCAGCAAGC

ApaLI

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3051 CTCCAAGCTG GGCTGTGTGC ACGAACCCCC CGTTCAGCCC GACCGCTGCC  
GAGGTTCGAC CCGACACACG TGCTTGGGG GCAAGTCGGG CTGGCGACGC  
  
3101 CCTTATCCGG TAACTATCGT CTTGAGTCCA ACCCGGTAAG ACACGACTTA  
GGAATAGGCC ATTGATAGCA GAACTCAGGT TGGGCCATTG TGTGCTGAAT  
  
3151 TCGCCACTGG CAGCAGCCAC TGGTAACAGG ATTAGCAGAG CGAGGTATGT  
AGCGGTGACC GTCGTCGGTG ACCATTGTCC TAATCGTCTC GCTCCATACA  
  
3201 AGGCGGTGCT ACAGAGTTCT TGAAGTGGTG GCCTAACTAC GGCTACACTA  
TCCGCCACGA TGTCTCAAGA ACTTCACCAC CGGATTGATG CCGATGTGAT  
  
3251 GAAGAACAGT ATTTGGTATC TGCGCTCTGC TGTAGCCAGT TACCTTCGGA  
CTTCTTGTCA TAAACCATAG ACGCGAGACG ACATCGGTCA ATGGAAGCCT

3301 AAAAGAGTTG GTAGCTCTTG ATCCGGCAAA CAAACCACCG CTGGTAGCGG  
TTTCTCAAC CATCGAGAAC TAGGCCGTT GTTGGTGGC GACCATCGCC

3351 TGGTTTTTTT GTTGCAAGC AGCAGATTAC GCGCAGAAA AAAGGATCTC  
ACCAAAAAAA CAAACGTTCG TCGTCTAATG CGCGTCTTT TTTCTAGAG

3401 AAGAAGATCC TTTGATCTT TCTACGGGT CTGACGCTCA GTGGAACGAA  
TTCTCTAGG AACTAGAAA AGATGCCCA GACTGCGAGT CACCTGCTT

3451 AACTCACGTT AAGGGATTT GGTCAGATCT AGCACCAGGC GTTTAAGGGC  
TTGAGTGCAA TTCCCTAAAA CCAGTCTAGA TCGTGGTCCG CAAATTCCCC

3501 ACCAATAACT GCCTAAAAAA ATTACGCC CGCCCTGCCA CTCATCGCAG  
TGGTTATTGA CGGAATTTTT TTAATGCCGG GCGGGACGGT GAGTAGCGTC

3551 TACTGTTGTA ATTCATTAAG CATTCTGCCG ACATGGAAGC CATCACAAAC  
ATGACAACAT TAAGTAATTC GTAAGACGGC TGTACCTTCG GTAGTGTGTTG

3601 GGCATGATGA ACCTGAATCG CCAGCGGCAT CAGCACCTTG TCGCCTGCG  
CCGTACTACT TGGACTTAGC GGTCGCCGTA GTCTGGAAC AGCGAACACG

3651 TATAATATTG GCCCATAGTG AAAACGGGGG CGAAGAAGTT GTCCATATTG  
ATATTATAAA CGGGTATCAC TTTGCCCTT GCTCTTCAA CAGGTATAAC

3701 GCTACGTTTA AATCAAAACT GGTGAAACTC ACCCAGGGAT TGGCTGAGAC  
CGATGCAAAT TTAGTTTGAG CCACTTGAG TGGTCCCTA ACCGACTCTG

3751 GAAAAACATA TTCTCAATAA ACCCTTTAGG GAAATAGGCC AGGTTTCAC  
CTTTTGTAT AAGAGTTATT TGGGAAATCC CTTTATCCGG TCCAAAAGTG

3801 CGTAACACGC CACATCTTGC GAATATATGT GTAGAAACTG CCGGAAATCG  
GCATTGTGCG GTGTAGAACG CTTATATACA CATCTTGAC GGCCTTAGC

3851 TCGTGGTATT CACTCCAGAG CGATGAAAAC GTTCAGTTT GCTCATGGAA  
AGCACCATAA GTGAGGTCTC GCTACTTTG CAAAGTCAAA CGAGTACCTT

3901 AACGGTGTAA CAAGGGTGA CACTATCCC TATCACCAGC TCACCGTCTT  
TTGCCACATT GTTCCCACTT GTGATAGGGT ATAGTGGTCG AGTGGCAGAA

3951 TCATTGCCAT ACGGAACCTCC GGGTGAGCAT TCATCAGGCG GGCAAGAAC  
AGTAACGGTA TGCCTTGAGG CCCACTCGTA AGTAGTCCGC CCGTTCTTAC

4001 TGAATAAAGG CCGGATAAAA CTTGTGCTTA TTTTCTTTA CGGTCTTAA  
ACTTATTTCG GGCCTATTTT GAACACGAAT AAAAAGAAAT GCCAGAAATT

4051 AAAGGCCGTA ATATCCAGCT GAACGGTCTG GTTATAGGTA CATTGAGCAA  
TTTCCGGCAT TATAGGTCTA CTTGCCAGAC CAATATCCAT GTAACTCGTT

4101 CTGACTGAAA TGCCTCAAAA TGTTCTTAC GATGCCATTG GGATATATCA  
GACTGACTTT ACGGAGTTT ACAAGAAATG CTACGGTAAC CCTATATAGT

4151 ACGGTGGTAT ATCCAGTGAT TTTTTCTCC ATTTAGCTT CCTTAGCTCC  
TGCCACCATA TAGGTCACTA AAAAAGAGG TAAAATCGAA GGAATCGAGG

4201 TGAAAATCTC GATAACTCAA AAAATACGCC CGGTAGTGAT CTTATTCAT  
ACTTTAGAG CTATTGAGTT TTTTATGCCG GCCATCACTA GAATAAAGTA

4251 TATGGTGAAA GTTGGAACCT CACCCGACGT CTAATGTGAG TTAGCTCACT  
ATACCACCTT CAACCTTGGA GTGGGCTGCA GATTACACTC AATCGAGTGA

4301 CATTAGGCAC CCCAGGCTTT ACACTTTATG CTTCCGGCTC GTATGTTGTG  
GTAATCCGTG GGGTCCGAAA TGTGAAATAC GAAGGCCGAG CATAACAACAC

M13 Reverse primer 100.0%

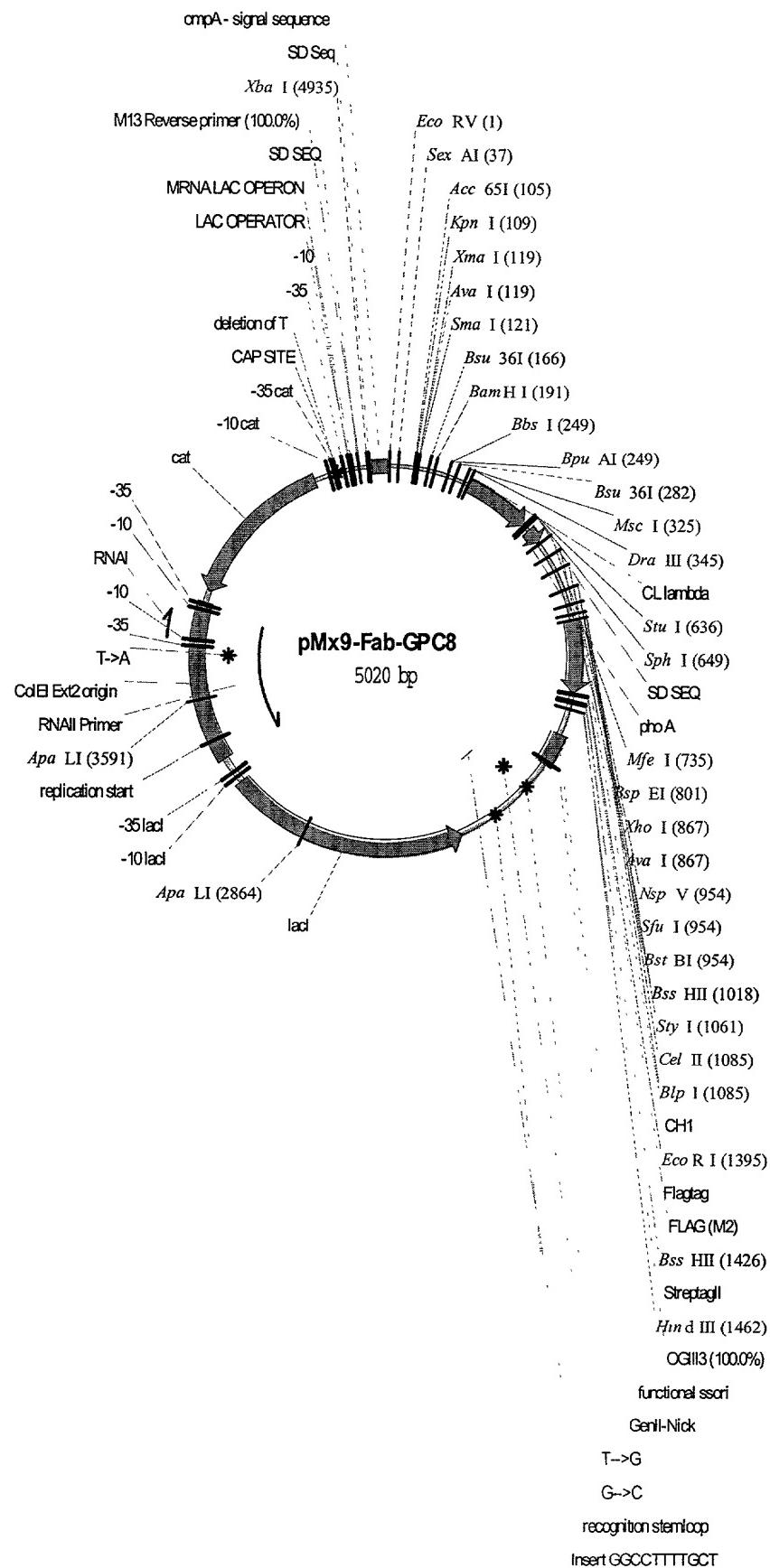
=====

4351 TGGAATTGTG AGCGGATAAC AATTCACAC AGGAAACAGC TATGACCATG  
ACCTAACAC TCGCCTATTG TTAAAGTGTG TCCTTGTG ATACTGGTAC

4401 ATTACGAATT  
TAATGCTTAA

4.00000 50000 100000 150000 200000 250000 300000

# Figure 13



## Figure 13 (cont)

|                                                                                                                                                                                                                                                                              |                         |                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------|
| <p>EcoRV<br/>~~~~~</p> <p>1 ATCGTCTGA CCCAGCCGCC TTCAGTGAGT GGCGCACAG GTCAGCGTGT<br/>TAGCACGACT GGGTCGGCGG AAGTCACTCA CCGCGTGGTC CAGTCGCACA</p> <p>51 GACCATCTCG TGTAGCGGCA GCAGCAGCAA CATTGGCAGC AACTATGTGA<br/>CTGGTAGAGC ACATCGCCGT CGTCGTCGTT GTAACCGTCG TTGATAACACT</p> | <p>SexAI<br/>~~~~~</p>  | <p>XmaI<br/>~~~~~</p>   |
| <p>KpnI<br/>~~~~~</p> <p>101 GCTGGTACCA GCAGTTGCCCGGGACGGCGC CGAAACTGCT GATTTATGAT<br/>CGACCATGGT CGTCAACGGG CCCTGCCGCG GCTTGACGA CTAAATACTA</p>                                                                                                                             | <p>SmaI<br/>~~~~~</p>   | <p>Acc65I<br/>~~~~~</p> |
| <p>151 AACAAACCAGC GTCCCTCAGG CGTGCCTGGAT CGTTTAGCG GATCCAAAAG<br/>TTGTTGGTCG CAGGGAGTCC GCACGGCCTA GCAAATCGC CTAGGTTTC</p>                                                                                                                                                  | <p>Bsu36I<br/>~~~~~</p> | <p>BamHI<br/>~~~~~</p>  |
| <p>201 CGGCACCAGC GCGAGCCTTG CGATTACGGG CCTGCAAAGC GAAGACGAAG<br/>GCCGTGGTCG CGCTCGAAC GCTAATGCCG GGACGTTTCG CTTCTGCTTC</p>                                                                                                                                                  | <p>BpuAI<br/>~~~~~</p>  | <p>BbsI<br/>~~~~~</p>   |
| <p>251 CGGATTATTA TTGCCAGAGC TATGACATGC CTCAGGCTGT GTTTGGCGGC<br/>GCCTAATAAT AACGGTCTCG ATACTGTACG GAGTCCGACA CAAACCGCCG</p>                                                                                                                                                 | <p>Bsu36I<br/>~~~~~</p> | <p></p>                 |
| <p>301 GGCACGAAGT TTAACCGTTC TTGGCCAGCC GAAAGCCGCA CCGAGTGTGA<br/>CCGTGCTTCA AATTGGCAAG AACCGGTCTGG CTTCTGGCGT GGCTCACACT</p>                                                                                                                                                | <p>MscI<br/>~~~~~</p>   | <p>DraIII<br/>~~~~~</p> |
| <p>351 CGCTGTTCC GCCGAGCAGC GAAGAATTGC AGCGAACAA AGCGACCCCTG<br/>GCGACAAAGG CGGCTCGTCG CTTCTTAACG TCCGCTTGTGTT TCGCTGGAC</p>                                                                                                                                                 | <p></p>                 | <p></p>                 |
| <p>401 GTGTGCCTGA TTAGCGACTT TTATCCGGGA GCCGTGACAG TGGCCTGGAA<br/>CACACGGACT AATCGCTGAA AATAGGCCCT CGGCACTGTC ACCGGACCTT</p>                                                                                                                                                 | <p></p>                 | <p></p>                 |
| <p>451 GGCAGATAGC AGCCCCGTCA AGGCGGGAGT GGAGACCACC ACACCCCTCCA<br/>CCGTCTATCG TCAGGGCAGT TCCGCCCTCA CCTCTGGTGG TGTGGGAGGT</p>                                                                                                                                                | <p></p>                 | <p></p>                 |
| <p>501 AACAAAGCAA CAACAAGTAC GCGGCCAGCA GCTATCTGAG CCTGACGCCT<br/>TTGTTTCGTT GTTGTTCATG CGCCGGTCGT CGATAGACTC GGACTGCGGA</p>                                                                                                                                                 | <p></p>                 | <p></p>                 |
| <p>551 GAGCAGTGGA AGTCCCACAG AAGCTACAGC TGCCAGGTCA CGCATGAGGG<br/>CTCGTCACCT TCAGGGTGTGTC TTGATGTGTC ACGGTCCAGT GCGTACTCCC</p>                                                                                                                                               | <p>StuI<br/>~~~~~</p>   | <p>SphI<br/>~~~~~</p>   |

TOP STRAND

601 GAGCACCGTG GAAAAAACCG TTGCGCCGAC TGAGGCCTGA TAAGCATGCG  
CTCGTGGCAC CTTTTTGGC AACGCGGCTG ACTCCGGACT ATTCTGACGC

651 TAGGAGAAAA TAAAATGAAA CAAAGCACTA TTGCACTGGC ACTCTTACCG  
ATCCTCTTT ATTTTACTTT GTTTCGTGAT AACGTGACCG TGAGAATGGC

MfeI

701 TTGCTCTTCA CCCCTGTTAC CAAAGCCCAG GTGCAATTGA AAGAAAGCGG  
AACGAGAACT AACGACAATG GTTTCGGGTC CACGTTAACT TTCTTTCGCC

BspEI

751 CCCGGCCCTG GTGAAACCGA CCCAAACCCCT GACCCTGACC TGTACCTTT  
GGGCCGGGAC CACTTGGCT GGGTTGGGA CTGGGACTGG ACATGGAAAA

BspEI

801 CCGGATTTAG CCTGTCCACG TCTGGCGTTG GCGTGGGCTG GATTGCCAG  
GGCCTAAATC GGACAGGTGC AGACCGCAAC CGCACCCGAC CTAAGCGGTC

XbaI

851 CCGCCTGGGA AAGCCCTCGA GTGGCTGGCT CTGATTGATT GGGATGATGA  
GGCGGACCCCT TTCGGGAGCT CACCGACCGA GACTAACTAA CCCTACTACT

901 TAAGTATTAT AGCACCAAGCC TGAAAACGCG TCTGACCATT AGCAAAGATA  
ATTCTATAATA TCGTGGTCGG ACTTTGCGC AGACTGGTAA TCGTTTCTAT

BstBI

SfuI

NspV

951 CTTCGAAAAA TCAGGTGGTG CTGACTATGA CCAACATGGA CCCGGTGGAT  
GAAGCTTTT AGTCCACCCAC GACTGATACT GGTTGTACCT GGGCCACCTA

BssHII

1001 ACGGCCACCT ATTATTGCGC GCGTTCTCCT CGTTATCGTG GTGCTTTGA  
TGCCGGTGGA TAATAACGCG CGCAAGAGGA GCAATAGCAC CACGAAACT

BlnI

StyI

CelII

1051 TTATTGGGGC CAAGGCACCC TGGTGACGGT TAGCTCAGCG TCGACCAAAG  
AATAACCCCG GTTCCGTGGG ACCACTGCCA ATCGAGTCGC AGCTGGTTTC

1101 GTCCAAGCGT GTTCCCGCTG GCTCCGAGCA GCAAAAGCAC CAGCGGCGGC  
CAGGTTCGCA CAAAGGCGAC CGAGGGCTCGT CGTTTCGTG GTCGCCGCCG

1151 ACGGCTGCC C TGGGCTGCCT GGTTAAAGAT TATTTCGGG AACCAAGTCAC

TGCCGACGGG ACCCGACGGA CCAATTCTA ATAAAGGGCC TTGGTCAGTG  
1201 CGTGAGCTGG AACAGCGGGG CGCTGACCAG CGCGTGCAT ACCTTCCGG  
GCACTCGACC TTGTGCCCC GCGACTGGTC GCCGCACGTA TGAAAGGCC  
1251 CGGTGCTGCA AAGCAGCGGC CTGTATAGCC TGAGCAGCGT TGTGACCGTG  
GCCACGACGT TTCGTCGCCG GACATATCGG ACTCGTCGCA ACACTGGCAC  
1301 CCGAGCAGCA GCTTAGGCAC TCAGACCTAT ATTTGCAACG TGAACCATAA  
GGCTCGTCGT CGAATCCGTG AGTCTGGATA TAAACGTTGC ACTTGGTATT

EcoRI

1351 ~~~~~  
ACCGAGCAAC ACCAAAGTGG ATAAAAAAAGT GGAACCGAAA AGCGAATTG  
TGGCTCGTTG TGGTTTCACC TATTTTTCA CCTTGGCTTT TCGCTTAAGC

BssHII

1401 ~~~~~  
ACTATAAAGA TGACGATGAC AAAGGCGCGC CGTGGAGCCA CCCGCAGTTT  
TGATATTTCT ACTGCTACTG TTTCCGCGCG GCACCTCGGT GGGCGTCAAA

HindIII

1451 ~~~~~  
GAAAAATGAT AAGCTTGACC TGTGAAGTGA AAAATGGCGC AGATTGTGCG  
CTTTTTACTA TTCAACTGG ACACTTCACT TTTTACCGCG TCTAACACGC  
OGIII 100.0%  
=====

1501 ACATTTTTT TGTCTGCCGT TTAATTAAAG GGGGGGGGGG GCCGGCCTGG  
TGTAAAAAAA ACAGACGGCA ATTAAATTTC CCCCCCCCCC CGGCCGGACC  
1551 GGGGGGGTGT ACATGAAATT GTAAACGTTA ATATTTGTT AAAATCGCG  
CCCCCCACA TGTACTTTAA CATTGCAAT TATAAAACAA TTTTAAGCGC  
1601 TTAAATTTT GTTAAATCAG CTCATTTTT AACCAATAGG CCGAAATCGG  
AATTAAAAAA CAATTTAGTC GAGTAAAAAA TTGGTTATCC GGCTTAGCC  
1651 CAAAATCCCT TATAATCAA AAGAATAGAC CGAGATAGGG TTGAGTGTG  
GTTTTAGGGA ATATTTAGTT TTCTTATCTG GCTCTATCCC AACTCACAAAC  
1701 TTCCAGTTG GAACAAGAGT CCACTATTAA AGAACGTGGA CTCCAACGTC  
AAGGTCAAAC CTTGTTCTCA GGTGATAATT TCTTGCACCT GAGGTTGCAG  
1751 AAAGGGCGAA AAACCGTCTA TCAGGGCGAT GGCCCCTAC GAGAACCATC  
TTTCCCGCTT TTTGGCAGAT AGTCCCGCTA CCGGGTGATG CTCTTGGTAG  
1801 ACCCTAATCA AGTTTTTGG GGTGAGGTG CCGTAAAGCA CTAAATCGGA  
TGGGATTAGT TCAAAAAAAC CCAGCTCCAC GGCATTCGTT GATTTAGCCT  
1851 ACCCTAAAGG GAGCCCCCGA TTTAGAGCTT GACGGGGAAA GCCGGCGAAC  
TGGGATTTCCTC CTCGGGGCTT AAATCTCGAA CTGCCCCCTT CGGCCGCTTG  
1901 GTGGCGAGAA AGGAAGGGAA GAAAGCGAAA GGAGCGGGCG CTAGGGCGCT  
CACCGCTCTT TCCTTCCCTT CTTCGCTTT CCTCGCCCCGC GATCCCGCGA  
1951 GGCAAGTGTA GCGGTACGCA TGCGCGTAAC CACCACACCC GCCGCGCTTA  
CCGTTACAT CGCCAGTGCG ACGCGCATTG GTGGTGTGGG CGGCGCGAAT

2001 ATGCGCCGCT ACAGGGCGCG TGCTAGACTA GTGTTAACAC CGGACCGGGG  
TACGCGGCAGA TGTCCCGCGC ACGATCTGAT CACAAATTG GCCTGGCCCC  
  
2051 GGGGGCTTAA GTGGGCTGCA AAACAAAACG GCCTCCTGTC AGGAAGCCGC  
CCCCCGAATT CACCCGACGT TTTGTTTGCG CGGAGGACAG TCCTTCGGCG  
  
2101 TTTTATCGGG TAGCCTCACT GCCCGCTTC CAGTCGGAA ACCTGTCGTG  
AAAATAGCCC ATCGGAGTGA CGGGCGAAAG GTCAGCCCTT TGGACAGCAC  
  
2151 CCAGCTGCAT CAGTGAATCG GCCAACGCGC GGGGAGAGGC GGTTTGCCTA  
GGTCGACGTA GTCACTTAGC CGGTTGCGCG CCCCTCTCCG CCAAACGCAT  
  
2201 TTGGGAGCCA GGGTGGTTTT TCTTTTCAAC AGTGAGACGG GCAACAGCTG  
AACCCCTCGGT CCCACCAAAA AGAAAAGTGG TCACTCTGCC CGTTGTCGAC  
  
2251 ATTGCCCTTC ACCGCCTGGC CCTGAGAGAG TTGCAGCAAG CGGTCCACGC  
TAACGGGAAG TGGCGGACCG GGACTCTCTC AACGTCGTTG GCCAGGTGCG  
  
2301 TGGTTTGCCTC CAGCAGGCGA AAATCCTGTT TGATGGTGGT CAGCGCGGGG  
ACCAAACGGG GTCGTCCGCT TTTAGGACAA ACTACCACCA GTCGCCGCC  
  
2351 ATATAAACATG AGCTGTCCTC GGTATCGTCG TATCCCACTA CCGAGATGTC  
TATATTGTAC TCGACAGGAG CCATAGCAGC ATAGGGTGAT GGCTCTACAG  
  
2401 CGCACCAACG CGCAGCCCCG ACTCGGTAAT GGCACGCATT GCGCCAGCG  
GCGTGGTTGC GCGTCGGGCC TGAGCCATTA CCGTGCCTAA CGCGGGTCGC  
  
2451 CCATCTGATC GTTGGCAACC AGCATCGCAG TGGGAACGAT GCCCTCATTC  
GGTAGACTAG CAACCGTTGG TCGTAGCGTC ACCCTTGCTA CGGGAGTAAG  
  
2501 AGCATTTGCA TGGTTTGTG AAAACCGGAC ATGGCACTCC AGTCGCCCTTC  
TCGTAACGT ACCAAACAAC TTTTGGCCTG TACCGTGAGG TCAGCGGAAG  
  
2551 CCGTCCGCT ATCGGCTGAA TTTGATTGCG AGTGAGATAT TTATGCCAGC  
GGCAAGGCGA TAGCCGACTT AAACTAACGC TCACTCTATA AATACGGTCG  
  
2601 CAGCCAGACG CAGACCGGCC GAGACAGAAC TTAATGGGCC AGCTAACAGC  
GTCGGTCTGC GTCTGCGCGG CTCTGTCTTG AATTACCCGG TCGATTGTCG  
  
2651 GCGATTGCT GGTGGCCCAA TGCGACCAGA TGCTCCACGC CCAGTCGCGT  
CGCTAAACGA CCACCGGGTT ACGCTGGTCT ACGAGGTGCG GGTCAAGCGA  
  
2701 ACCGTCCTCA TGGGAGAAAA TAATACTGTT GATGGGTGTC TGGTCAGAGA  
TGGCAGGAGT ACCCTCTTT ATTATGACAA CTACCCACAG ACCAGTCTCT  
  
2751 CATCAAGAAA TAACGCCGGA ACATTAGTGC AGGCAGCTTC CACAGCAATA  
GTAGTTCTTT ATTGCGGCCT TGTAATCACG TCCGTCGAAG GTGTCGTTAT  
  
2801 GCATCCTGGT CATCCAGCGG ATAGTTAATA ATCAGCCCAC TGACACGTTG  
CGTAGGACCA GTAGGTGCGC TATCAATTAT TAGTCGGGTG ACTGTGCAAC

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2851 CGCGAGAAGA TTGTGCACCG CCGCTTTACA GGCTTCGACG CCGCTTCGTT
GCGCTCTTCT AACACGTGGC GGCAGAAATGT CCGAAGCTGC GGCAGAGCAA

2901 CTACCATCGA CACGACCACG CTGGCACCCA GTTGATCGGC GCGAGATTAA
GATGGTAGCT GTGCTGGTGC GACCGTGGGT CAAACTAGCCG CGCTCTAAAT

2951 ATCGCCGCGA CAATTGCGA CGGCGCGTGC AGGGCCAGAC TGGAGGTGGC
TAGCGCGCT GTTAAACGCT GCCGCGCACG TCCCGGTCTG ACCTCCACCG

3001 AACGCCAACATC AGCAACGACT GTTTGCCCGC CAGTTGTTGT GCCACCGCGT
TTGCGGTTAG TCGTTGCTGA CAAACGGGCG GTCAACACA CGGTGCGCCA

3051 TAGGAATGTA ATTCAAGCTCC GCCATCGCCG CTTCCACTTT TTCCCGCGTT
ATCCTTACAT TAAGTCGAGG CGGTAGCGGC GAAGGTGAAA AAGGGCGCAA

3101 TTCGCAGAAA CGTGGCTGGC CTGGTTCACCC ACAGGGAAA CGGTCTGATA
AAGCGTCTTT GCACCGACCG GACCAAGTGG TGCGCCCTT GCCAGACTAT

3151 AGAGACACCG GCATACTCTG CGACATCGTA TAACGTTACT GGTTTCACAT
TCTCTGTGGC CGTATGAGAC GCTGTAGCAT ATTGCAATGA CCAAAGTGT

3201 TCACCACCCCT GAATTGACTC TCTTCCGGGC GCTATCATGC CATAACCGCGA
AGTGGTGGGA CTTAACTGAG AGAAGGCCCG CGATAGTACG GTATGGCGCT

3251 AAGGTTTTGC GCCATTGAT GCTAGCCATG TGAGCAAAAG GCCAGCAAAA
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3301 GGCCAGGAAC CGTAAAAGG CCGCGTTGCT GGCGTTTTTC CATAGGCTCC
CCGGTCCTTG GCATTTTCC GGCGCAACGA CCGCAAAAG GTATCCGAGG

3351 GCCCCCCCTGA CGAGCATCAC AAAATCGAC GCTCAAGTCA GAGGTGGCGA
CGGGGGGACT GCTCGTAGTG TTTTAGCTG CGAGTTCACT CTCCACCGCT

3401 AACCCGACAG GACTATAAAAG ATACCAGGGCG TTTCCCCCTG GAAGCTCCCT
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3451 CGTGCCTCT CCTGTTCCGA CCCTGCCGCT TACCGGATAC CTGTCCGCCT
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3501 TTCTCCCTTC GGGAAAGCGTG GCGCTTTCTC ATAGCTCACG CTGTAGGTAT
AAGAGGGAAG CCCTTCGAC CGCGAAAGAG TATCGAGTGC GACATCCATA

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3551 CTCAGTTCGG TGTAGGTCGT TCGCTCCAAG CTGGGCTGTG TGCACGAACC  
GAGTCAAGCC ACATCCAGCA AGCGAGGTTG GACCCGACAC ACGTGCTTGG  
  
3601 CCCCGTTCAAG CCCGACCGCT GCGCCTTATC CGGTAACTAT CGTCTTGAGT  
GGGGCAAGTC GGGCTGGCGA CGCGGAATAG GCCATTGATA GCAGAACTCA  
  
3651 CCAACCCGGT AAGACACGAC TTATGCCAC TGGCAGCAGC CACTGGTAAC  
GGTTGGGCCA TTCTGTGCTG AATAGCGGTG ACCGTCGTCG GTGACCATTG  
  
3701 AGGATTAGCA GAGCGAGGTA TGTAGGCGGT GCTACAGAGT TCTTGAAGTG  
TCCTAATCGT CTCGCTCCAT ACATCCGCCA CGATGTCTCA AGAACTTCAC  
  
3751 GTGGCCTAAC TACGGCTACA CTAGAAGAAC AGTATTGAGT ATCTGCGCTC  
CACCGGATTG ATGCCGATGT GATCTTCTTG TCATAAACCA TAGACCGAG  
  
3801 TGCTGTAGCC AGTTACCTTC GGAAAAAGAG TTGGTAGCTC TTGATCCGGC

ACGACATCGG TCAATGGAAG CCTTTTCTC AACCATCGAG AACTAGGCCG  
3851 AAACAAACCA CCGCTGGTAG CGGTGGTTT TTTGTTGCA AGCAGCAGAT  
TTTGTGGT GGCGACCATC GCCACCAAAA AAACAAACGT TCGTCGTCTA  
3901 TACGCGCAGA AAAAAAGGAT CTCAAGAAGA TCCTTGATC TTTCTACGG  
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3951 GGTCTGACGC TCAGTGGAAC GAAAACTCAC GTTAAGGGAT TTTGGTCAGA  
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4001 TCTAGCACCA GGCGTTAAG GGCACCAATA ACTGCCTTAA AAAAATTACG  
AGATCGTGGT CCGCAAATTC CCGTGGTTAT TGACGGAATT TTTTAATGC  
4051 CCCCGCCCTG CCACTCATCG CAGTAUTGTT GTAATTCAATT AAGCATTCTG  
GGGGCGGGAC GGTGAGTAGC GTCATGACAA CATTAAGTAA TTCGTAAGAC  
4101 CCGACATGGA AGCCATCACA AACGGCATGA TGAACCTGAA TCGCCAGCGG  
GGCTGTACCT TCGGTAGTGT TTGCCGTACT ACTTGGACTT AGCGGTCGCC  
4151 CATCAGCACC TTGTCGCCTT GCGTATAATA TTTGCCATA GTGAAAACGG  
GTAGTCGTGG AACAGCGGAA CGCATATTAT AAACGGGTAT CACTTTGCC  
4201 GGGCGAAGAA GTTGTCCATA TTGGCTACGT TTAAATCAAA ACTGGTGAAA  
CCCGCTTCTT CAACAGGTAT AACCGATGCA AATTAGTT TGACCACTTT  
4251 CTCACCCAGG GATTGGCTGA GACGAAAAAC ATATTCTAA TAAACCTTT  
GAGTGGGTCC CTAACCGACT CTGCTTTTG TATAAGAGTT ATTTGGGAAA  
4301 AGGGAAATAG GCCAGGTTTT CACCGTAACA CGCCACATCT TGCGAATATA  
TCCCTTTATC CGGTCAAAAA GTGGCATTGT GCGGTGTAGA ACGCTTATAT  
4351 TGTGTAGAAA CTGCCGGAAA TCGTCGTGGT ATTCACTCCA GAGCGATGAA  
ACACATCTT GACGGCCTT AGCAGCACCA TAAGTGAGGT CTCGCTACTT  
4401 AACGTTTCAG TTTGCTCATG GAAAACGGTG TAACAAGGGT GAACACTATC  
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4451 CCATATCACC AGCTCACCGT CTTTCATTGC CATA CGGAAC TCCGGGTGAG  
GGTATAGTGG TCGAGTGGCA GAAAGTAACG GTATGCCCTG AGGCCACTC  
4501 CATTCACTCAG GCGGGCAAGA ATGTGAATAA AGGCCGGATA AAAC TTGTGC  
GTAAGTAGTC CGCCCGTTCT TACACTTATT TCCGGCCTAT TTTGAACACG  
4551 TTATTTTCT TTACGGTCCTT TAAAAAGGCC GTAATATCCA GCTGAACGGT  
AATAAAAGA AATGCCAGAA ATTTTCGGG CATTATAGGT CGACTTGCCA  
4601 CTGGTTATAG GTACATTGAG CAACTGACTG AAATGCCCTCA AAATGTTCTT  
GACCAATATC CATGTAACTC GTTGAUTGAC TTTACGGAGT TTTACAAGAA  
4651 TACGATGCCA TTGGGATATA TCAACGGTGG TATATCCAGT GATTTTTTC  
ATGCTACGGT AACCCATAT AGTTGCCACC ATATAGGTCA CTAAAAAAAG  
4701 TCCATTTAG CTTCCCTTAGC TCCTGAAAAT CTCGATAACT CAAAAAAATAC  
AGGTAAAATC GAAGGAATCG AGGACTTTA GAGCTATTGA GTTTTTATG  
4751 GCCCGGTAGT GATCTTATTT CATTATGGTG AAAGTTGGAA CCTCACCCGA

CGGGCCATCA CTAGAATAAA GTAATACCAC TTTCAACCTT GGAGTGGGCT

4801 CGTCTAATGT GAGTTAGCTC ACTCATTAGG CACCCCAGGC TTTACACTT GCAGATTACA CTCAATCGAG TGAGTAATCC GTGGGGTCCG AAATGTGAAA

4851 ATGCTTCCGG CTCGTATGTT GTGTGGAATT GTGAGCGGAT AACAAATTCA TACGAAGGCC GAGCATACAA CACACCTAA CACTCGCCTA TTGTTAAAGT

M13 Reverse primer 100.0% XbaI  
===== ~~~~~

4901 CACAGGAAAC AGCTATGACC ATGATTACGA ATTCTAGAT AACGAGGGCA GTGTCCTTG TCGATACTGG TACTAATGCT TAAAGATCTA TTGCTCCGT

4951 AAAATGAAA AAGACAGCTA TCGCGATTGC AGTGGCACTG GCTGGTTTCG TTTTACTTT TTCTGTCGAT AGCGCTAACG TCACCGTGAC CGACCAAAGC

EcoRV  
~~~

5001 CTACCGTAGC GCAGGCCGAT
GATGGCATCG CGTCCGGCTA

Figure 14

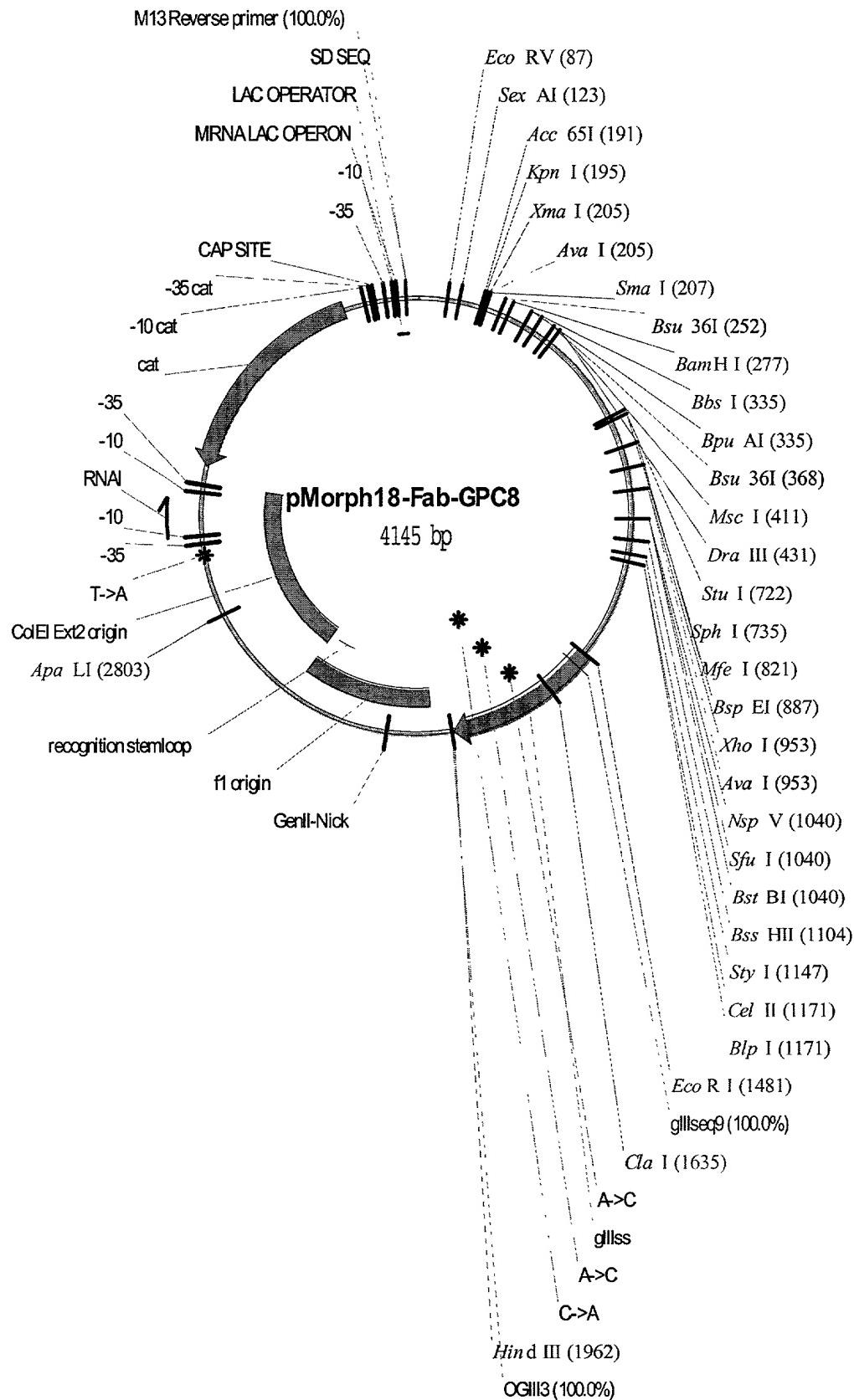


Figure 14 (cont)

1 TCAGATAAACG AGGGCAAAAA ATGAAAAGA CAGCTATCGC GATTGCAGTG
AGTCTATTGC TCCCGTTTTT TACCTTTTCT GTCGATAGCG CTAACGTCAC

EcoRV

51 GCACTGGCTG GTTTCGCTAC CGTAGCCAG GCCGATATCG TGCTGACCCA
CGTGACCGAC CAAAGCGATG GCATCGCGTC CGGCTATAAGC ACGACTGGGT

SexAI

101 GGCGCCTTCA GTGAGTGGCG CACCAAGGTCA GCGTGTGACC ATCTCGTGT
 CGGCGGAAGT CACTCACCGC GTGGTCCAGT CGCACACTGG TAGAGCACAT

KpnI

Acc65I

151 GCGGCAGCAG CAGAACATT GGCAGCACT ATGTGAGCTG GTACCAGCAG
CGCCGTCGTC GTCGTTGTA CCGTCGTTGA TACACTCGAC CATGGTCGTC

XmaI

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Simpl

AvaT

Bsu36I

201 TTGCCCGGGGA CGGCGCCGAA ACTGCTGATT TATGATAAAC ACCAGCGTC
AACGGGCCCT GCCGCGGCTT TGACGACTAA ATACTATGT TGGTCGCAGG

Bsu36I

BamHI

251 CTCAGGCGTG CCGGATCGTT TTAGCGGATC CAAAAGCGGC ACCAGCGCGA
GAGTCCGCAC GGCCTAGCAA AATCGCTAG GTTTTCGCCG TGGTCGCGCT

BpuAI

BbsI

301 GCCTTGCGAT TACGGGCCTG CAAAGCGAAG ACGAAGCGGA TTATTATTGC
CGGAACGCTA ATGCCCGGAC GTTTCGCTTC TGCTTCGCGCT AATAATAACG

Bsu36I

351 CAGAGCTATG ACATGCCCTCA GGCTGTGTTT GGCGGGGGCA CGAAGTTTAA
GTCTCGATAC TGTAACGGAGT CCGACACAAAA CCGCCGCGGT GCTTCAAATT

Mscl

DraIII

401 CCGTTCTTGG CCAGCCGAAA GCGCGACCGA GTGTGACGCT GTTTCCGCC
GGCAAGAACC GGTCTGGCTTT CGGGTGGCT CACACTGCGA CAAAGGCGGC

451 AGCAGCGAAG AATTGCAGGC GAACAAAGCG ACCCTGGTGT GCCTGATTAG
TCGTCGCTTC TTAACGTCCG CTTGTTTCGC TGGGACCAACA CGGACTAAATC

501 CGACTTTAT CCGGGAGCCG TGACAGTGGC CTGGAAGGCC GATAGCAGCC

GCTGAAAATA GGCCCTCGGC ACTGTCACCG GACCTTCCGT CTATCGTCGG

551 CCGTCAAGGC GGGAGTGGAG ACCACCACAC CCTCCAAACA AAGCAACAAC
GGCAGTTCCG CCCTCACCTC TGGTGGTGTG GGAGGTTTGT TTCGTTGTTG

601 AAGTACGCGG CCAGCAGCTA TCTGAGCCTG ACGCCCTGAGC AGTGGAAAGTC
TTCATGCGCC GGTCGTCGAT AGACTCGGAC TGCGGACTCG TCACCTTCAG

651 CCACAGAAGC TACAGCTGCC AGGTACCGCA TGAGGGGAGC ACCGTGGAAA
GGTGTCTTCG ATGTCGACGG TCCAGTGCCTG ACTCCCCTCG TGGCACCTTT

StuI SphI

701 AAACCGTTGC GCCGACTGAG GCCTGATAAG CATCGTAGG AGAAAATAAA
TTTGGCAACG CGGCTGACTC CGGACTATTG GTACGCATCC TCTTTATTT

751 ATGAAACAAA GCACTATTGC ACTGGCACTC TTACCGTTGC TCTTCACCCC
TACTTTGTTT CGTGATAACG TGACCGTGAG AATGGCAACG AGAAGTGGGG

MfeI

801 TGTTACCAAA GCCCAGGTGC ATTGAAAGA AAGCGGCCG GCCCTGGTGA
ACAATGGTTT CGGGTCCACG TTAACTTCT TTGCGCCGGC CGGGACCACT

BspEI

851 AACCGACCCA AACCTGACC CTGACCTGTA CCTTTCCGG ATTTAGCCTG
TTGGCTGGT TTGGGACTGG GACTGGACAT GGAAAAGGCC TAAATCGGAC

901 TCCACGTCTG GCGTTGGCGT GGGCTGGATT CGCCAGCCGC CTGGGAAAGC
AGGTGCAGAC CGCAACCGCA CCCGACCTAA CGGTCGGCG GACCCTTCG

XbaI

951 CCTCGAGTGG CTGGCTCTGA TTGATTGGGA TGATGATAAG TATTATAGCA
GGAGCTCACC GACCGAGACT AACTAACCT ACTACTATTG ATAATATCGT

BstBI

1001 CCAGCCTGAA AACGCGTCTG ACCATTAGCA AAGATACTTC GAAAAATCAG
GGTCGGACTT TTGCGCAGAC TGGTAATCGT TTCTATGAAG CTTTTAGTC

1051 GTGGTGCTGA CTATGACCAA CATGGACCCG GTGGATACGG CCACCTATTA
CACCAAGACT GATACTGGTT GTACCTGGGC CACCTATGCC GGTGGATAAT

BssHII

StyI

1101 TTGCGCGCGT TCTCCTCGTT ATCGTGGTGC TTTTGATTAT TGGGGCCAAG
AACCGCGCA AGAGGAGCAA TAGCACCACG AAAACTAATA ACCCCGGTTC

BpuI

StyI

CelII

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1151 GCACCCCTGGT GACGGTTAGC TCAGCGTCGA CCAAAGGTCC AAGCGTGTTC
CGTGGGACCA CTGCCAATCG AGTCGCAGCT GGTTTCCAGG TTCGCACAAA

1201 CCGCTGGCTC CGAGCAGCAA AAGCACCAAGC GGCGGCACGG CTGCCCTGGG
GGCGACCGAG GCTCGTCGTT TTCGTGGTCG CCGCCGTGCC GACGGACCC

1251 CTGCCTGGTT AAAGATTATT TCCCGGAACC AGTCACCGTG AGCTGGAACA
GACGGACCAA TTTCTAATAA AGGGCCTTGG TCAGTGGCAC TCGACCTTGT

1301 GCGGGGCGCT GACCAGCGGC GTGCATAACCT TTCCGGCGGT GCTGCAAAGC
CGCCCCGCGA CTGGTCGCCG CACGTATGGA AAGGCCGCCA CGACGTTTCG

1351 AGCGGCCTGT ATAGCCTGAG CAGCGTTGTG ACCGTGCCGA GCAGCAGCTT
TCGCCGGACA TATCGGACTC GTCGCAACAC TGGCACGGCT CGTCGTCGAA

1401 AGGCACTCAG ACCTATATTT GCAACGTGAA CCATAAACCG AGCAACACCA
TCCGTGAGTC TGGATATAAA CGTTGCACCTT GGTATTTGGC TCGTTGTGGT

EcoRI

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1451 AAGTGGATAA AAAAGTGGAA CCGAAAAGCG AATTGGGGGG AGGGAGCGGG  
TTCACCTATT TTTTCACCTT GGCTTTTCGC TTAAGCCCCC TCCCTCGCCC

1501 AGCGGTGATT TTGATTATGA AAAGATGGCA AACGCTAATA AGGGGGCTAT  
TCGCCACTAA AACTAATACT TTTCTACCGT TTGCGATTAT TCCCCCGATA  
gIIIseq9 100.0%

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1551 GACCGAAAAT GCCGATGAAA ACGCGCTACA GTCTGACGCT AAAGGAAAC  
CTGGCTTTA CGGCTACTTT TGCGCGATGT CAGACTGCGA TTTCCGTTG

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1601 TTGATTCTGT CGCTACTGAT TACGGTGCTG CTATCGATGG TTTCATTGGT
AACTAAGACA GCGATGACTA ATGCCACGAC GATAGCTACC AAAGTAACCA

1651 GACGTTTCCG GCCTTGCTAA TGGTAATGGT GCTACTGGTG ATTTGCTGG
CTGCAAAGGC CGGAACGATT ACCATTACCA CGATGACCAC TAAAACGACC

1701 CTCTAATTCC CAAATGGCTC AAGTCGGTGA CGGTGATAAT TCACCTTTAA
GAGATTAAGG GTTTACCGAG TTCAGCCACT GCCACTATTA AGTGGAAATT

1751 TGAATAATTTC CCGTCAATAT TTACCTTCCC TCCCTCAATC GGTTGAATGT
ACTTATTAAA GGCAGTTATA AATGGAAGGG AGGGAGTTAG CCAACTTACA

1801 CGCCCTTTG TCTTTGGCGC TGGTAAACCA TATGAATTTC CTATTGATTG
GCGGGAAAAC AGAAACCGCG ACCATTGGT ATACTAAAA GATAACTAAC

1851 TGACAAAATA AACTTATTCC GTGGTGTCTT TGCGTTTCTT TTATATGTTG
ACTGTTTAT TTGAATAAGG CACCACAGAA ACGCAAAGAA AATATACAAC

1901 CCACCTTTAT GTATGTATT TCTACGTTTG CTAACATACT GCGTAATAAG
GGTGGAAATA CATACTAAA AGATGCAAAC GATTGTATGA CGCATTATTC

40001334-44504

HindIII

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1951 GAGTCTTGAT AAGCTTGACC TGTGAAGTGA AAAATGGCGC AGATTGTGCG  
CTCAGAACTA TTGAACTGG ACACTTCACT TTTTACCGCG TCTAACACGC  
OGIII 100.0%

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2001 ACATTTTTT TGTCTGCCGT TTAATGAAAT TGAAACGTT AATATTTGT  
TGTAAAAAAA ACAGACGGCA AATTACTTTA ACATTTGCAA TTATAAAACA

2051 TAAAATTTCGC GTTAAATTTCG TGTAAATCA GCTCATTTT TAACCAATAG  
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2101 GCCGAAATCG GCAAAATCCC TTATAAATCA AAAGAATAGA CCGAGATAGG  
CGGCTTAGC CGTTTAGGG AATATTTAGT TTTCTTATCT GGCTCTATCC

2151 GTTGAGTGTGTT GTTCCAGTTT GGAACAAGAG TCCACTATTA AAGAACGTGG  
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2201 ACTCCAACGT CAAAGGGCGA AAAACCGTCT ATCAGGGCGA TGGCCCACTA  
TGAGGTTGCA GTTTCCCGCT TTTGGCAGA TAGTCCCGCT ACCGGGTGAT

2251 CGAGAACCAT CACCCTAACAT AAGTTTTTG GGGTCGAGGT GCCGTAAGC  
GCTCTGGTA GTGGGATTAG TTCAAAAAAC CCCAGCTCCA CGGCATTCG

2301 ACTAAATCGG AACCCCTAAAG GGAGCCCCCG ATTTAGAGCT TGACGGGAA  
TGATTTAGCC TTGGGATTTC CCTCGGGGGC TAAATCTCGA ACTGCCCTT

2351 AGCCGGCGAA CGTGGCGAGA AAGGAAGGGA AGAAAGCGAA AGGAGCGGGC  
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2401 GCTAGGGCGC TGGCAAGTGT AGCGGTACG CTGCGCGTAA CCACCACACC  
CGATCCCGCG ACCGTTACA TCGCCAGTGC GACGCGCATT GGTGGTGTGG

2451 CGCCCGCCTT AATGCGCCGC TACAGGGCGC GTGCTAGCCA TGTGAGCAA  
CGGGCGCGAA TTACGCGCG ATGTCCCGCG CACGATCGGT ACACTCGTT

2501 AGGCCAGCAA AAGGCCAGGA ACCGTAAAAA GGCCGCGTTG CTGGCGTTT  
TCCGGTCGTT TTCCGGTCCT TGGCATTTT CCGCGCAAC GACCGCAAAA

2551 TCCATAGGCT CCGCCCCCT GACGAGCATC ACAAAATCG ACGCTCAAGT  
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2601 CAGAGGTGGC GAAACCCGAC AGGACTATAA AGATACCAGG CGTTTCCCCC  
GTCTCCACCG CTTTGGGCTG TCCTGATATT TCTATGGTCC GCAAAGGGGG

2651 TGGAAAGCTCC CTCGTGCGCT CTCCTGTTCC GACCCCTGCCG CTTACCGGAT  
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2701 ACCTGTCCGC CTTTCTCCCT TCGGGAAAGCG TGGCGCTTTC TCATAGCTCA  
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2751 CGCTGTAGGT ATCTCAGTTC GGTGTAGGTC GTTCGCTCCA AGCTGGGCTG  
GCGACATCCA TAGAGTCAAG CCACATCCAG CAAGCGAGGT TCGACCCGAC

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TOP SECRET//SI

2801 TGTGCACGAA CCCCCCGTTC AGTCCGACCG CTGCGCCTTA TCCGGTAACT
ACACGTGCTT GGGGGGCAAG TCAGGCTGGC GACCGGAAT AGGCCATTGA

2851 ATCGTCTTGA GTCCAACCCG GTAAGACACG ACTTATCGCC ACTGGCAGCA
TAGCAGAACT CAGGTTGGC CATTCTGTGC TGAATAGCGG TGACCGTCGT

2901 GCCACTGGTA ACAGGATTAG CAGAGCGAGG TATGTAGGCG GTGCTACAGA
CGGTGACCAT TGTCCCTAAC TGTCTCGCTCC ATACATCCGC CACGATGTCT

2951 GTTCTTGAAG TGGTGGCCTA ACTACGGCTA CACTAGAAGA ACAGTATTG
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3001 GTATCTGCGC TCTGCTGTAG CCAGTTACCT TCGGAAAAAG AGTTGGTAGC
CATAGACGCG AGACGACATC GGTCAATGGA AGCCTTTTC TCAACCATCG

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3151 TCTTTCTAC GGGGTCTGAC GCTCAGTGGA ACGAAAATC ACGTTAACGG
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3201 ATTTTGGTCA GATCTAGCAC CAGGCCTTA AGGGCACCAA TAACTGCCTT
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3251 AAAAAAATTA CGCCCCGCC CGCCACTCAT CGCAGTACTG TTGTAATTCA
TTTTTTAAT GCGGGGCGGG ACGGTGAGTA GCGTCATGAC AACATTAAGT

3301 TTAAGCATTG TGCCGACATG GAAGCCATCA CAAACGGCAT GATGAACCTG
AATTGTAAG ACGGCTGTAC CTTCGGTAGT GTTGCCGTA CTACTTGGAC

3351 AATGCCAGC GGCATCAGCA CCTTGTGCC TTGCGTATAA TATTGCCCCA
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3401 TAGTAAAAAC GGGGGCGAAG AAGTTGTCCA TATTGGCTAC GTTTAAATCA
ATCACTTTG CCCCCGCTTC TTCAACAGGT ATAACCGATG CAAATTAGT

3451 AAACTGGTGA AACTCACCCA GGGATTGGCT GAGACGAAAA ACATATTCTC
TTTGACCACT TTGAGTGGGT CCCTAACCGA CTCTGCTTT TGTATAAGAG

3501 AATAAACCCCT TTAGGGAAAT AGGCCAGGTT TTCACCGTAA CACGCCACAT
TTATTTGGGA AATCCCTTA TCCGGTCCAA AAGTGGCATT GTGCGGTGTA

3551 CTTGCGAATA TATGTGTAGA AACTGCCGGA AATCGTCGTG GTATTCACTC
GAACGCTTAT ATACACATCT TTGACGGCCT TTAGCAGCAC CATAAGTGAG

+1
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GTCTCGCTAC TTTTGCAAAG TCAAACGAGT ACCTTTGCC ACATTGTTCC

3651 GTGAACACTA TCCCCATATCA CCAGCTCACC GTCTTCATT GCCATACGGA
CACTTGTGAT AGGGTATAGT GGTCGAGTGG CAGAAAGTAA CGGTATGCCT

3701 ACTCCGGGTG AGCATTCACTC AGGCGGGCAA GAATGTGAAT AAAGGCCGGA
TGAGGCCAC TCGTAAGTAG TCCGCCGTT CTTACACTTA TTTCCGGCCT

3751 TAAAACTTGT GCTTATTTT CTTTACGGTC TTTAAAAAGG CCGTAATATC
ATTTGAACA CGAATAAAA GAAATGCCAG AAATTTTCC GGCATTATAG

3801 CAGCTGAACG GTCTGGTTAT AGGTACATTG AGCAACTGAC TGAAATGCCT
GTCGACTTGC CAGACCAATA TCCATGTAAC TCGTTGACTG ACTTTACGGA

3851 CAAAATGTTC TTTACGATGC CATTGGGATA TATCAACGGT GGTATATCCA
GTTTTACAAG AAATGCTACG GTAACCCTAT ATAGTTGCCA CCATATAGGT

3901 GTGATTTTT TCTCCATTTT AGCTTCCTTA GCTCCTGAAA ATCTCGATAA
CACTAAAAAA AGAGGTAAAA TCGAAGGAAT CGAGGACTTT TAGAGCTATT

3951 CTCAAAAAAAT ACGCCCGGTA GTGATCTTAT TTCATTATGG TGAAAGTTGG
GAGTTTTTA TGCAGGCCAT CACTAGAATA AAGTAATACC ACTTTCAACC

4001 AACCTCACCC GACGTCTAAT GTGAGTTAGC TCACTCATTA GGCACCCCAG
TTGGAGTGGG CTGCAGATTA CACTCAATCG AGTGAGTAAT CCGTGGGTC

4051 GCTTACACT TTATGCTTCC GGCTCGTATG TTGTGTGGAA TTGTGAGCGG
CGAAATGTGA AATACGAAGG CCGAGCATAAC AACACACCTT AACACTCGCC

M13 Reverse primer 100.0%

=====

4101 ATAACAATTT CACACAGGAA ACAGCTATGA CCATGATTAC GAATT
TATTGTTAAA GTGTGTCCCTT TGTCGATACT GGTACTAATG CTTAA

Figure 15

MS - GPC - 1 :

VH

QVQLKESGPALVKPTQTLTCTFSGFSLSTSGVGVGWIRQPPGKALEWLALID
WDDDKYYSTSLKTRLTI SKDTSKNQVVLMTNMDPVDTATYYCARQYGHRGFFD
HWGQGTLVTVSS

VL

DIVLTQPPSVSGAPGQRTISCSGSSSNIGSNYVSWYQQLPGTAPKLLIYDNNQ
RPSGVPDFSGSKSGTSASLAITGLQSEDEADYYCQSYDFNESVFGGGTKLTVL
G

MS - GPC - 6

VH

EVQLVESGGLVQPGGSLRLSCAASGFTFSSYAMSWVRQAPGKGLEWVSAISGS
GGSTYYADSVKGRFTISRDNSKNTLYLQMNSLRAEDTAVYYCARGYGRYSPDLW
GQGTLVTVSS

VL

DIVLTQSPATLSLSPGERATLSCRASQSVSSSYLAWYQQKPGQAPRLLIYGASS
RATGVPARFSGSGSGTDFTLTISSLEPEDFAVYYCQQYSNLPFTFGQGTKVEIK
RT

MS - GPC - 8

VH

QVQLKESGPALVKPTQTLTCTFSGFSLSTSGVGVGWIRQPPGKALEWLALID
WDDDKYYSTSLKTRLTI SKDTSKNQVVLMTNMDPVDTATYYCARS PRYRGAFD
YWGQGTLVTVSS

VL

DIVLTQPPSVSGAPGQRTISCSGSSSNIGSNYVSWYQQLPGTAPKLLIYDNNQ
RPSGVPDFSGSKSGTSASLAITGLQSEDEADYYCQSYDMMPQAVFGGGTKLTVL
G

MS - GPC - 10

VH

QVQLKESGPALVKPTQTLTCTFSGFSLSTSGVGVGWIRQPPGKALEWLALID
WDDDKYYSTSLKTRLTI SKDTSKNQVVLMTNMDPVDTATYYCARQLHYRGFFD
LWGQGTLVTVSS

VL

DIVLTQPPSVSGAPGQRTISCSGSSSNIGSNYVSWYQQLPGTAPKLLIYDNNQ
RPSGVPDFSGSKSGTSASLAITGLQSEDEADYYCQSYDLTMGVFGGGTKLTVL
G

MS-GPC-8-6

VH

QVQLKESGPALVKPTQTLTCTFSGFSLSTSGVGVGWIRQPPGKALEWLALID
WDDDKYYSTSLKTRLTI SKDTSKNQVVLMTNMDPVDTATYYCARSPRYRGAFD
YWQGTLTVSS

VL

DIVLTQPPSVSGAPGQRVTISCSGSSSNIGSNYVSWYQQLPGTAPKLLIYDNNQ
RPSGVPDFSGSKSGTSASLAITGLQSEDEADYYCQSYDYDHVFGGGTKLTVL
G

MS-GPC-8-10

VH

QVQLKESGPALVKPTQTLTCTFSGFSLSTSGVGVGWIRQPPGKALEWLALID
WDDDKYYSTSLKTRLTI SKDTSKNQVVLMTNMDPVDTATYYCARSPRYRGAFD
YWQGTLTVSS

VL

DIVLTQPPSVSGAPGQRVTISCSGSSSNIGSNYVSWYQQLPGTAPKLLIYDNNQ
RPSGVPDFSGSKSGTSASLAITGLQSEDEADYYCQSYDLIRHVFGGGTKLTVL
G

MS-GPC-8-17

VH

QVQLKESGPALVKPTQTLTCTFSGFSLSTSGVGVGWIRQPPGKALEWLALID
WDDDKYYSTSLKTRLTI SKDTSKNQVVLMTNMDPVDTATYYCARSPRYRGAFD
YWQGTLTVSS

VL

DIVLTQPPSVSGAPGQRVTISCSGSSSNIGSNYVSWYQQLPGTAPKLLIYDNNQ
RPSGVPDFSGSKSGTSASLAITGLQSEDEADYYCQSYDFSVYVFGGGTKLTVL
G

MS-GPC-8-27

VH

QVQLKESGPALVKPTQTLTCTFSGFSLSTSGVGVGWIRQPPGKALEWLALID
WDDDKYYSTSLKTRLTI SKDTSKNQVVLMTNMDPVDTATYYCARSPRYRGAFD
YWQGTLTVSS

VL

DIVLTQPPSVSGAPGQRVTISCSGSSSNIGSNYVSWYQQLPGTAPKLLIYDNNQ
RPSGVPDFSGSKSGTSASLAITGLQSEDEADYYCQSYDMNVHVFGGGTKLTVL
G

MS-GPC-8-6-13

VH

2024-01-10 00:00:00

QVQLKESGPALVKPTQTLTCTFSGFSLSTSGVGVGWIQPPGKALEWLALID
WDDDKYYSTSLKTRLTISKDTSKNQVVLMTNMDPVDTATYYCARSPRYRGAFD
YWQGQTLTVSS

VL

DIVLTQPPSVSGAPGQRVTISCSGESNIGANYVTWYQQLPGTAPKLLIYDNNQRPSGVPDFSGSKSGTSASLAITGLQSEDEADYYCQSYYDHYVFGGGTKLTVLG

MS-GPC-8-10-57

VH

QVQLKESGPALVKPTQTLTLTCTFSGFSLSTSGVGVGWIRQPPGKALEWLALID
WDDDKYYSTSLKTRLTISKDTSKNQVVLMTNMDPVDTATYYCARSPRYRGAFD
YWGOGLTVTVSS

VI

DIVLTQPPSGAPGQRVTISCSGESNIGNYVQWYQQLPGTAPKLLIYDNNQ
RPSGVPDFSGSKSGTSASLAITGLQSEDEADYYCQSYDLIRHVFGGGTKLTVL
G

MS-GPC-8-27-41

VH

QVQLKESGPALVKPTQTLTCTFSGFSLSTSGVGVGWIRQPPGKALEWLALID
WDDDKYYSTSLKTRLTISKDTSKNQVVLMTNMDPVDTATYYCARSPRYRGAFD
YWGOQTLVTVSS

VI

DIVLTQPPSVGAPGQRVTISCSGESNIGNYVQWYQQLPGTAPKLLIYDNNQ
RPSGVPDFSGSKSGTSASLAITGLQSEDEADYYCQSYDMNVHVGCGTKLTVL
G

Figure 16

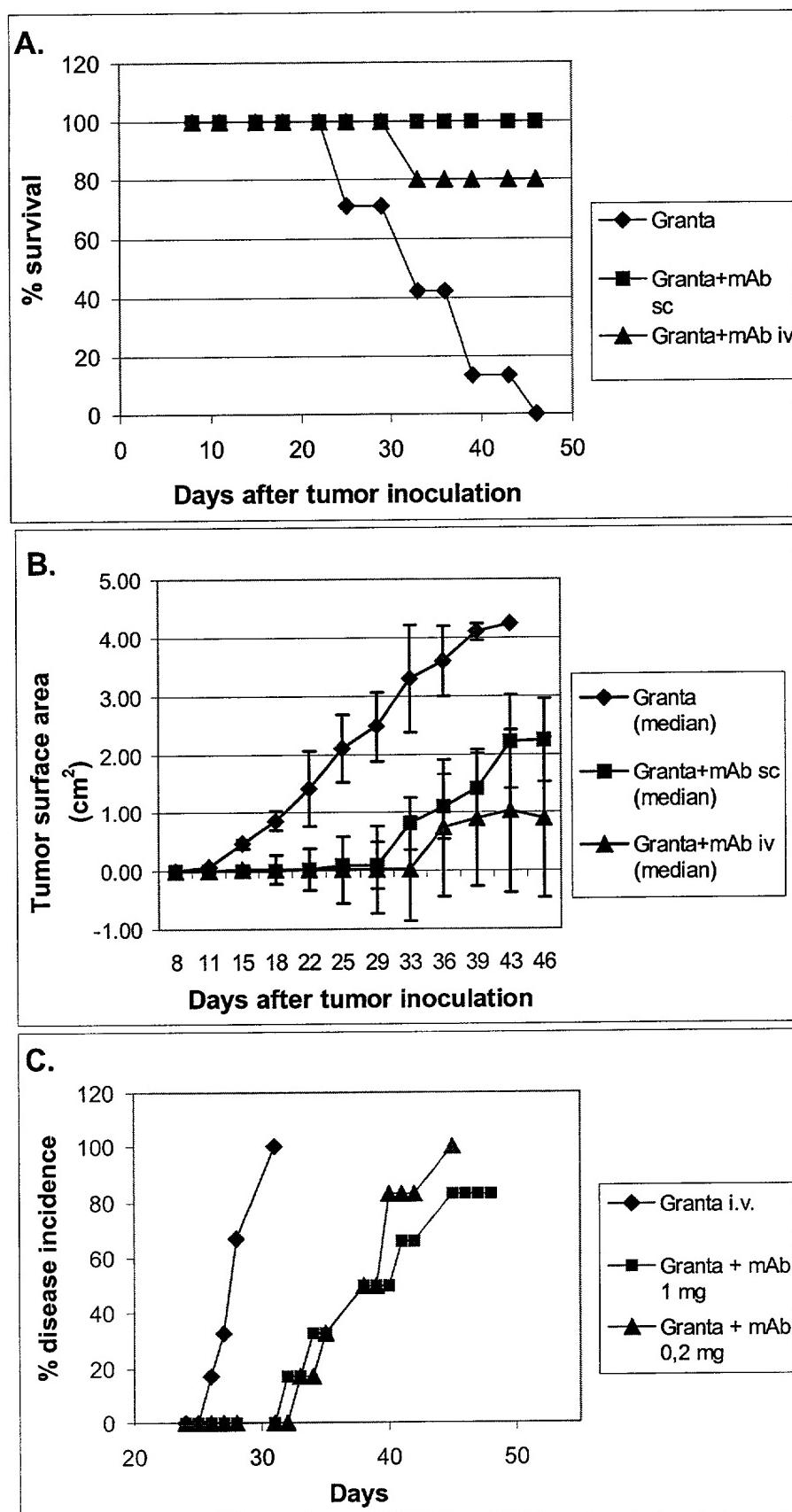


Figure 16 (Cont.)

D



Mouse #2, untreated, day 32; tumor area 4.76 cm^2

E



Mouse #13, mAb i.v., day 32; tumor area 0.01 cm^2